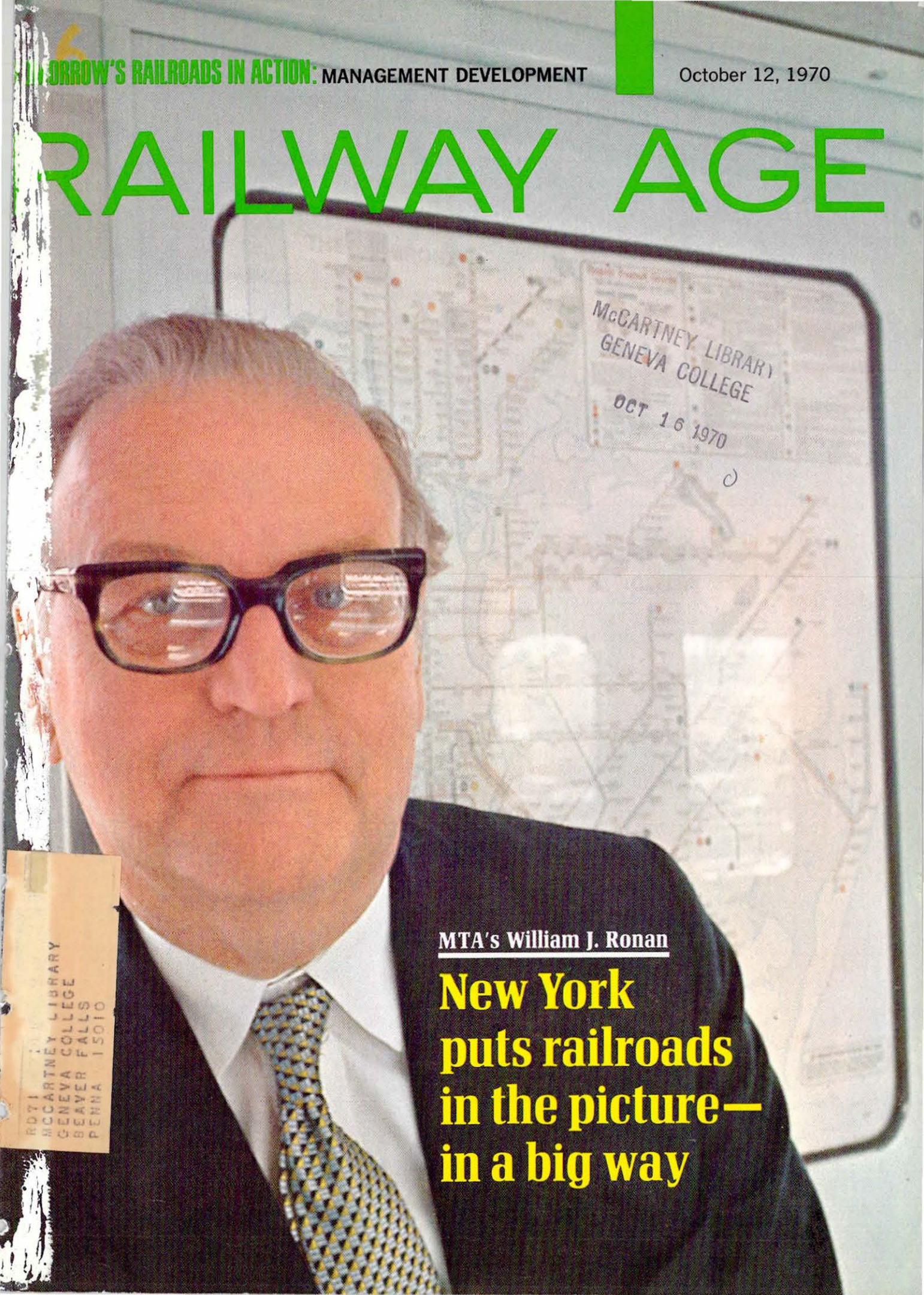
TOMORROW'S RAILROADS IN ACTION: MANAGEMENT DEVELOPMENT

October 12, 1970

RAILWAY AGE



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MTA's William J. Ronan

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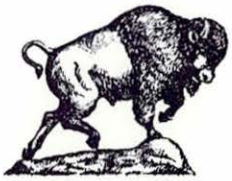

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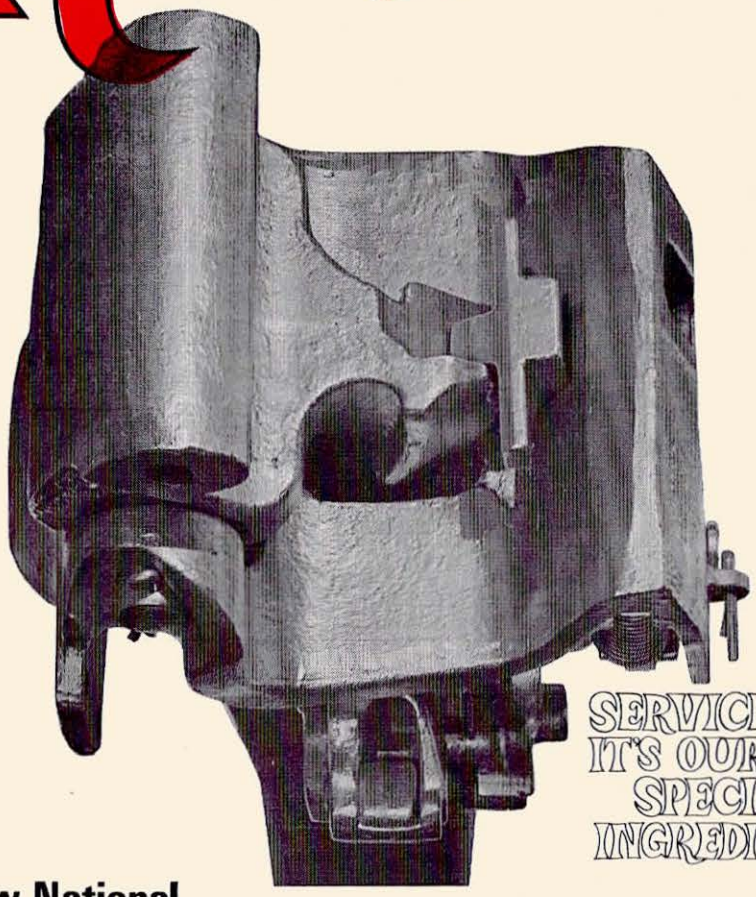

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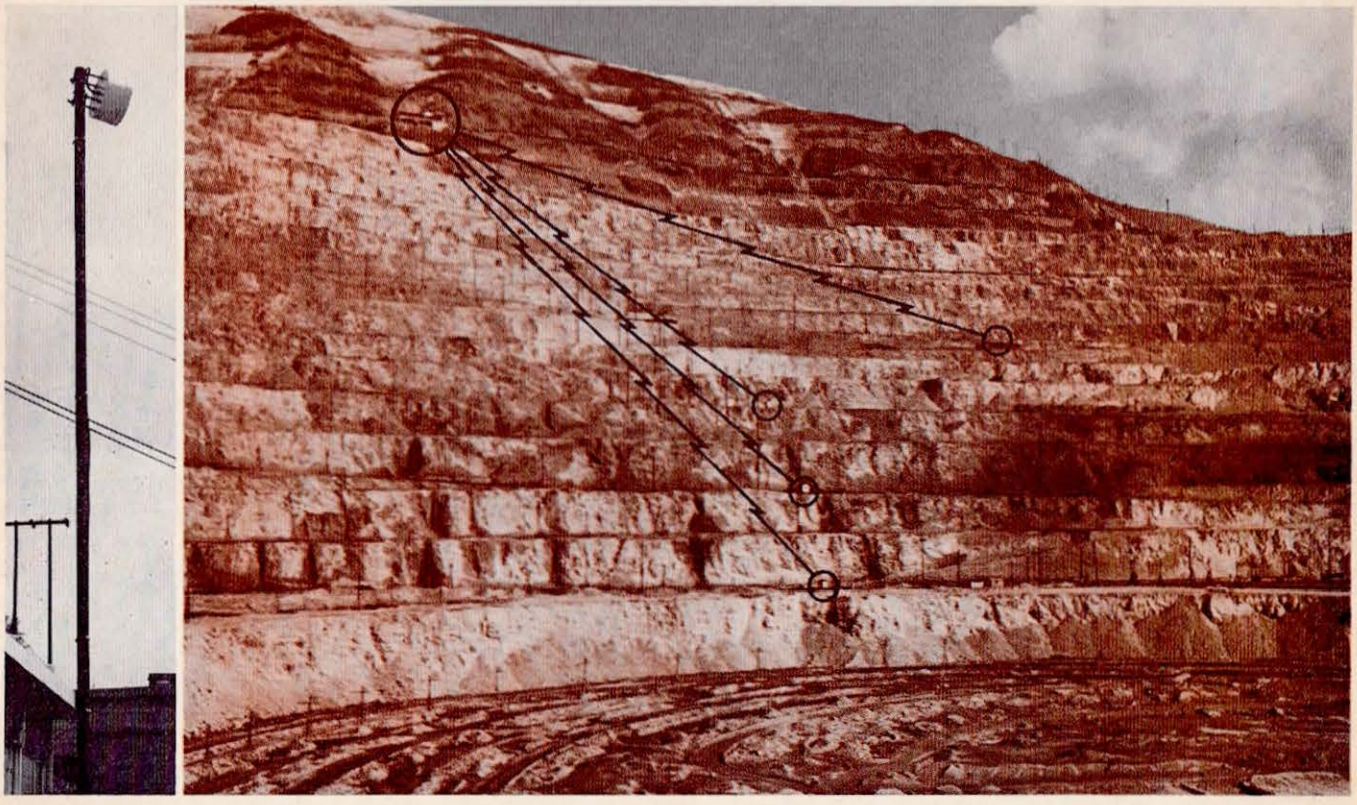
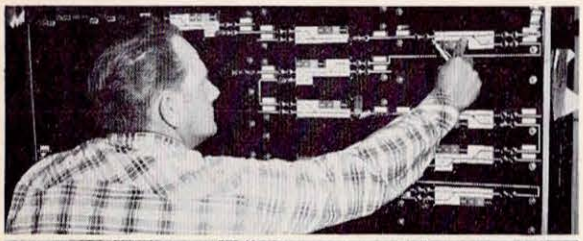
GRS RADIO CONTROL ROUTES ORE TRAINS

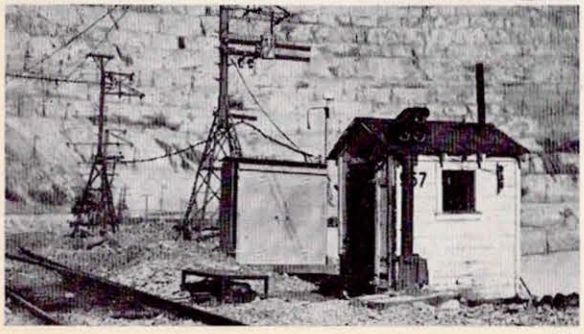


This antenna atop the command center beams controls down into the pit — and receives report-back indications from the 34 switching locations.

A radio linked command center at the edge of Kennecott Copper Corporation's mammoth Bingham Canyon mine directs moves of the many busy ore trains in this huge pit — nearly a quarter of a mile deep and two miles across.



Two pit dispatchers, each at a control console, line up routes to expedite ore train movements. Console panels are made up of modular units. They are rearranged as track layouts change with continuing excavation.



This is a typical switching location, with high-speed electric switch machine, signals, and equipment case with antenna. Armor plates protect the switch machine and case from blast debris. (The shack was used when switches had to be tended manually.)

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Inside

LUTHER MILLER

NOT WHOLLY RONAN, BUT . . .

In New York, they call it the "wholly Ronan empire." Dr. William J. Ronan finds this description of the Metropolitan Transportation Authority, which he heads, to be more flattering than accurate. The creation of MTA's far-flung transportation network, Ronan likes to point out, has been the work of a legion of men, beginning with Gov. Nelson Rockefeller. It was Rockefeller who staked his political life by fighting for (and winning) billions of dollars for unified public transportation long before the mass-transport bandwagon became the popular political vehicle that it now is.

It is "Ronan," however, that has become a household word. In a city where transportation is such an urgent personal matter that acquaintances greet each other not with comments on the weather but with tales (usually hair-raising) of their latest train rides, Ronan is a favorite of headline-hunting reporters.

But if "wholly Ronan empire" is frequently a term of exasperation in the doctor's home town, it is a term that evokes unstinted admiration among serious transportation planners around the world. For it is becoming clear that the Rockefeller/Ronan scheme for tying together all forms of mass transportation into a single network—with dollar priority going not where the lobbying is heaviest, but where the need is greatest—is setting a pattern for metropolitan areas far removed from New York City. (One measure of the respect accorded Ronan by his colleagues was his election some time ago as president of the nation-wide Institute for Rapid Transit; he has earned great credit for revitalizing that once-moribund organization.)

In this week's cover story (p. 26), Ronan describes a comparatively little-publicized facet of New York's plan—the bringing of commuter railroads into the picture.

INTRODUCING THE "VIEW FROM THE STREET"

Karl Ziebarth needs no introduction to Railway Age readers. As one of the most highly-respected railroad analysts in Wall Street, a long-time officer of Hayden, Stone, and for several years co-author (with his colleague Pierre Bretey) of that firm's "Annual Report on Railroads," Ziebarth has often been quoted in these pages. In this issue (p. 72), he makes his debut as a Railway Age contributor. Ziebarth's introductory "View from the Street" column examines, among other things, the question of whether railroads really help their image among investors when they over-dramatize their problems. His answer won't make every railroader happy. But it is likely to make every railroader who reads it think twice before again hauling out the crying towel. Ziebarth's column will appear in the first issue of Railway Age each month.

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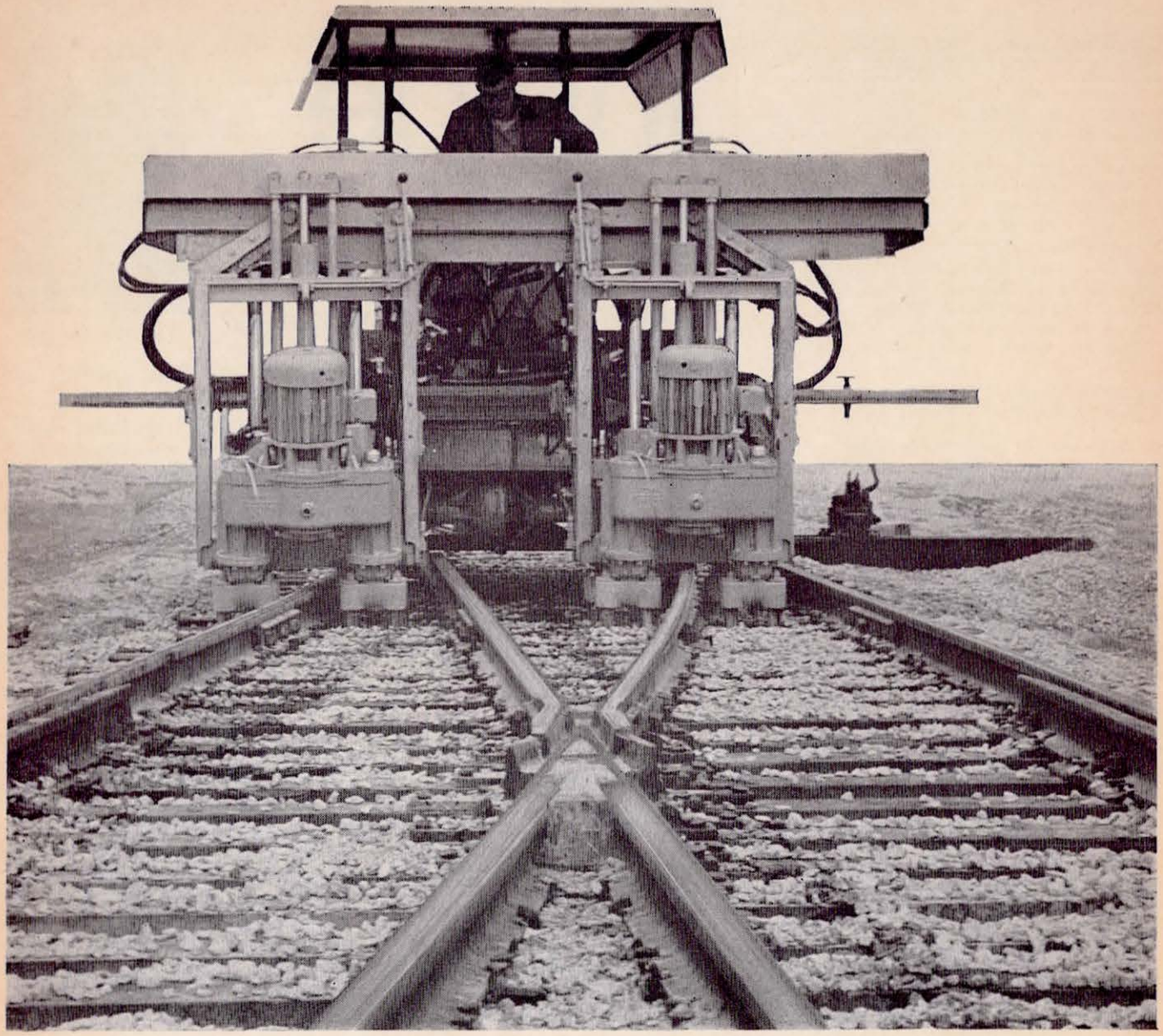

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RAILWAY AGE

OCTOBER 12, 1970

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Cover photo by Morris Warman
Metropolitan Transportation Authority

Short and Significant

LABOR

WAGE CASE SETTLEMENT: WHEN AND WHAT?

Wage disputes involving four rail unions are now in the hands of a five-man emergency board headed by Lewis M. Gill—with a report scheduled to go to the President in mid-October. If no agreement is reached, mid-November would be the earliest the unions—representing both ops and non-ops—could take strike action again. The board was created last month (RA, Sept. 28, p. 26) after the unions were blocked by a Federal court from continuing selective strikes.

UTU CALLS OFF ITS '71 CONFERENCE

First things first, the United Transportation Union says—and so there won't be a 1971 UTU conference on transportation problems/solutions. UTU's "first things" include settlement of the current wage case, settlement of the fireman-manning dispute and planning for a 1971 UTU constitutional convention. As UTU President Charles Luna puts it, "All of our creative resources are committed for what appears to be quite a while."

ANOTHER UNION MERGER COMING?

Two of the smaller non-operating rail unions may be headed for merger. By convention action, officers of the Brotherhood of Railroad Signalmen have been authorized "to seek to negotiate an affiliation" with the American Train Dispatchers Association.

FREIGHT EQUIPMENT

CAR OWNERSHIP DOWN BUT CAPACITY UP

AAR's Car Service Division says Class I rails owned 1,433,424 revenue freight cars this Sept. 1, down slightly from the 1,441,637 owned Sept. 1 a year ago. However, the capacity of these cars in aggregate tons increased—from 93,984,000 on Sept. 1, 1969 to 95,770,000 this Sept. 1. The AAR division also noted that Class I rails had on order 24,956 new freight cars this Sept. 1, down from 35,382 on order Sept. 1 a year ago.

ICC UPS COAL-CAR DEMURRAGE BY 100%

The ICC on Sept. 30 moved to ease a shortage of hopper cars to move coal by ordering an increase of 100% in demurrage charges on such equipment. Expiration of the increase will be on Dec. 1. The increase was recommended by a Presidential task force on the nation's current fuel and energy shortage. Rail sources said that additional thousands of hopper cars will be able to transport coal this winter when the Great Lakes are frozen, lowering rail iron ore traffic. The Presidential task force declined to ask for an embargo on shipments of export coal, because it brings in $900 million in foreign exchange.

NEW AUTO-HAULING SYSTEM STUDIED

Some transportation researchers are taking a close look at a container system in which automobiles will be transported on their sides. Like Vert-A-Pac —the car developed jointly by Southern Pacific and General Motors to haul compact autos bumper down—the proposed container system could make much greater use of the loading space on a flat car. Other plus-factors when compared with the auto-rack method are: (1) Reduced loading and unloading times and costs; (2) greater versatility; (3) improved safety; (4) sharply reduced damage.

TRANSIT

GOVERNMENT BACKS TRANSIT-CAR CONSORTIUM

The U.S. government, working through the Export-Import Bank, is giving major financial backing to a consortium that will supply 198 cars for the new transit system of Sao Paulo, Brazil (RA, Jan. 19, p. 13). To support nearly $24 million of purchases from the U.S. Eximbank has granted a loan of $11,883,000 plus loan guarantees totaling $13,659,000 to the Sao Paulo Metro. The consortium is made up of the Budd Co., which will supply the trucks; Budd's Brazilian licensee, Material Ferroviario SA Mafersa, which will supply the stainless-steel bodies and assemble the cars; Westinghouse Electric International and Westinghouse Electric's Brazilian licensee, Industrias Villares SA, which will furnish traction motors and controls; and the Brazilian licensee of Westinghouse Air Brake Co., Freis e Sinais do Brasil SA (FRESINBRA), which will supply brakes and couplers. The total value of the Sao Paulo contract is more than $50 million, of which about half represents U.S. participation.

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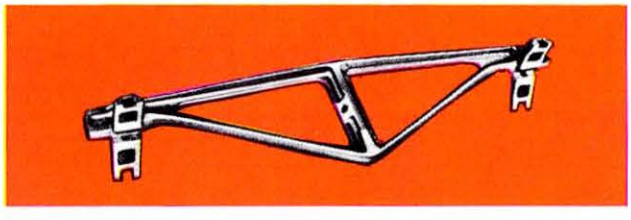

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RAILWAY AGE NEWS

Coast-to-coast by sleeping car? It's not a pipedream

The day may come, and soon, when a traveler (with time to spare) can once again go cross-country by train, without changing cars or trains, and with a roomette or bedroom in which to lay his weary head at night. The route would be New York-Washington-New Orleans-Los Angeles, via the "Southern Crescent" and the "Sunset," and the service would be available on a three-times-a-week basis. Jet travel, it's not. If you left Los Angeles on a Sunday evening, for instance, you'd be in Washington Thursday morning and in New York shortly after noon. But comfortable and leisurely travel, it could be (with the added attraction of an overnight stop in New Orleans during which the car would be available for passenger use).

Key to the startup of this Penn Central/Southern/Southern Pacific through (and experimental) service is an ICC decision on Southern's proposal to go to three-times-a-week operation of the "Crescent" between Birmingham and New Orleans, with daily operation maintained on the rest of the run (and with Southern adding a dome coach three days a week between Atlanta and New Orleans).

Earlier, Southern Pacific had proposed reinstating sleeping car, dining and lounge service on the "Sunset" if the ICC would permit a cutback from daily to three-times-a-week operation. And in SP's case, the ICC said "Yes."

The participating roads say they're hopeful that the proposed through car will be able to attract reasonable patronage on the thrice-weekly basis. And they may be right, if SP's recent experience is any guide. SP now operates its "City of San Francisco" and "Cascade" trains on a thrice-weekly schedule—and patronage is holding at 75% or better of total patronage when the trains were operated daily.

Santa Fe, SP win air-forwarding nod

Civil Aeronautics Board Examiner Hyman Goldberg has recommended that Santa Fe and Southern Pacific be permitted to engage in domestic and international air-freight forwarding for an initial five-year period.

The examiner's report, awaited since April, becomes final on Oct. 22 unless protesting parties petition for review or the CAB itself decides to review the findings.

Neither seems likely, since the examiner's report embodies suggestions of the Air Freight Forwarders Association, which initially opposed the railroads request. These suggestions were that the CAB apply a limited-entry policy for rails and that forwarding authority be limited to five years.

SP had asked for authority to establish an air freight forwarding subsidiary—Southern Pacific Air Freight, and ATSF requested authority to acquire an existing forwarder—Express Air Freight of New Jersey.

The examiner's approval was based primarily on the services the rails would bring to customers in the outlying, less populous areas of the West and Southwest.

CAB earlier upheld the right of long-haul motor carriers to enter air freight forwarding, a decision subsequently upheld by the Supreme Court.

First '71-model FAST train gets sendoff

Railroad and Ford Motor Co. officials were on hand as the 71-car "Pinto Express" prepared to leave the Detroit, Toledo & Ironton's Flat Rock, Mich., yard on a four-day run to the West Coast. It was the first Ford Auto Service Train (FAST) for the 1971 model year. Shown in photo are Samuel W. Walsh, inbound traffic manager of Ford's automotive assembly division; R. B. Wright, vice president — traffic for the DT&I; Leonard E. Peterson, marketing manager for the Rock Island; Theodore A. Theohar, traffic manager for the Norfolk & Western; and Rollin M. Stevens, manager of transportation planning for Ford.

FAST is a Ford pioneered system that entails assembling short, fast trains exclusively carrying Ford parts and cars. The first '71-model train carried autos for the western states and parts for Ford's Kansas City and San Jose assembly plants.

NEWS

Chicago railroads urge creation of new transit agency

"One for all and all in one" might well be the motto of Chicago's suburban-service railroads, where mass transportation is concerned. The six roads are urging the Illinois legislature to create a new public transportation agency "to operate or control all forms of surface passenger transportation" in a six-county area which makes up Chicagoland.

Chicago & North Western, Illinois Central, Milwaukee Road, Burlington Northern, Rock Island and Chicago South Shore & South Bend are joining in a statement of policy which says that such unification is vital.

First governmental reaction has been positive. An Illinois Senate subcommittee has agreed to assume the task of drafting mass-transportation-authority legislation. And it has approved, at least unofficially, the creation of an ad hoc committee of transportation experts to organize a study of mass-transportation systems, here and perhaps abroad, and then to make recommendations to the legislature and to other governmental bodies which would be involved in the proposed district.

Railroad spokesman before the Senate subcommittee was Chicago & North Western President Larry S. Provo—who suggested that the study group be headed by James D. Braman, former assistant secretary of transportation and a man "eminently qualified to assist metropolitan Chicago in this important exploratory assignment." Provo also proposed that committee membership include representatives of the legislature and of area planning and operating organizations, along with John Robson, former undersecretary of transportation and acting administrator of the Urban Mass Transportation Administration. Robson is now a consultant to Illinois Gov. Richard B. Ogilvie on formation of an Illinois DOT and, said Provo, "is ably qualified to serve as a legal counselor on legislative matters pertaining to regional transportation districts and their funding."

This is not the first time that joint policy has been considered, nor is it the first time an area-wide proposal has been made. One big difference, now, is that Chicago Transit Authority's financial problems are coming to a head—and at some point, some form of subsidy seems inevitable.

But what happens then? Then, the railroads say, they will be placed "in the intolerable position of facing publicly subsidized competition where [they] compete directly with the services operated by the CTA. This can lead only to deterioration of these financially marginal railroad services."

If subsidies are needed for CTA, the railroads say, "they are equally required for some of the suburban railroads and bus lines whose services are also now operated at substantial losses." Subsidies of this kind, however, "can offer no more than temporary relief. Short-term subsidies to numerous separate agencies, including the CTA, will not result in long-term solutions to the region's critical transportation problems. Accordingly, we urge the immediate establishment of a regionwide agency to administer the interconnected transportation needs of the six-county area."

Under the circumstances, the six railroads believe, "We have three choices: (1) to oppose subsidies to CTA for further extension of competitive median-strip transit lines, (2) to demand subsidies to permit the continuation of our services, or (3) to propose a rational approach to solve the total urban transportation problem. We choose the last of the three."

As the railroads see it, "The need is urgent, to allocate public monies in the most effective way possible. The Chicago area simply cannot afford the inefficiencies of piecemeal plans, stopgap subsidies and transit agencies competing with each other for less-than-adequate public funds. The Chicago area will get a proportionate share of the available federal funds only if it can demonstrate that it knows how to effectively use such funds—through coordinated transportation. In the final analysis, the beneficiary of coordinated transportation planning and operation—which only a single agency such as a Chicago Metropolitan Area Transportation System can provide—will be the public, which pays for all personal transportation whether it is good, bad or mediocre."

In his presentation to the Senate subcommittee, C&NW's Provo emphasized that CMATS "should have the power to decide whether future highway development in the area serves the best interest of total transportation needs. This concept envisions that all arterial highway planning and priorities for such highway investments be vested in the new transportation agency. To do otherwise would repeat the mistakes of all of the other major cities of this country." At the same time, he added, "this concept does not infringe upon the implementation and construction of such highways and their funding by established local, state and federal highway agencies."

Transit group elects DeMent

George L. DeMent, chairman of the Chicago Transit Authority since 1963, was elected president of the American Transit Association during ATA's recent annual convention in Boston. Elected vice chairman was Lucien L'Allier, chairman and general manager of the Montreal Urban Community Transit Commission. (For full report on ATA convention, see page 57.)

DeMent—who succeeds John Paul Jones, president of Cincinnati Transit, Inc., as ATA president—has headed the CTA since 1963.

Railpax measure advances in House

The bill to establish a National Rail Passenger Service Corp. similar to the semipublic Comsat Corp. chugged towards enactment as the House Commerce Committee approved a version that would authorize $340 million in Federal funds and loan guarantees.

A similar Senate-passed bill provides $175 million in Federal support.

There are other differences, especially in the formulae for determining rail purchases of the new corporation's stock, necessary if a carrier wishes the corporation to take over its passenger trains. Under the Senate bill, rails could only treat purchases as a nondeductible capital investment. The House bill gives rails the option of treating stock purchases as a tax deductible current expense.

The bill cannot go to a joint House-Senate conference until the House Ways and Means Committee, suzerain of tax matters, gives a final decision on the tax provisions.

The new corporation would run a basic rail passenger system laid down by DOT. Rails wouldn't be able to discontinue passenger trains before Jan. 1, unless they joined the corporation. The corporation itself could drop trains in the system after Jan. 1, 1973, two years earlier than the Senate bill allows.

It would be presided over by a 15-man board of directors, with eight named by the President and seven elected by stockholders. No Presidentially-appointed director could have any tie, direct or indirect, with railroads.

AAR's Goodfellow will head NDTA

Thomas M. Goodfellow, president of the Association of American Railroads, has been named president of the National Defense Transportation Association. The announcement of his election emphasized that Goodfellow "will continue to head the AAR as he has for the last three years." As head of the 13,000-member NDTA, Goodfellow succeeds Welby M. Frantz vice chairman of the board of Eastern Express, Inc.

Metroliner "demonstration" is now official

The Metroliner demonstration project officially got under way on Oct. 1—and Penn Central President William H. Moore declared, "We are going to do everything to make it a success."

But the formal inauguration of the demonstration project, 19 months after the first Metroliner trains began operating between New York and Washington, did not take place under entirely auspicious signs.

In the first place, only seven round-trips a day are being operated under the Federal demonstration—as opposed to the nine originally contemplated. This is because at any given time, 20 of the 49 Metroliner cars, built by the Budd Co., are out of service for repairs.

"These cars have been a great disappointment from the standpoint of reliability," said Paul Funkhouser, Penn Central's vice president for public affairs (formerly senior vice president, passenger service). Funkhouser said the Department of Transportation, which is running the demonstration project, was expected to put up $3 million for further debugging of the cars.

At a New York press conference, PC President Moore was pessimistic about the Metroliners as money-makers. "We will never make money on them," he asserted. He also said that the Metroliners' seat occupancy had dropped to 62% as new runs have been added in off-peak hours.

But the Metroliner project's real goal is not to make money. It is to ascertain whether there is, in fact, still a market for high-speed rail service in heavily populated corridors. And neither DOT nor Penn Central is flagging in their determination to achieve that goal.

At a Sept. 29 ceremony heralding formal inauguration of the project, DOT Under Secretary James M. Beggs noted that under the formal demonstration project the DOT's Federal Railroad Administration will for the first time receive maintenance and financial information which will be used to ascertain a cost-benefit ratio. With this information, said Beggs, FRA can experiment with service changes.

Among service changes envisioned are the following:

—Complimentary meals.

—Addition of hostesses ("attractive young ladies to assist passengers").

—Off-peak fare reductions.

—"Metrobus" service between hotels and Union Station in Washington.

—Opening of a second Metroliner suburban station near Woodbridge, N. J., at the intersection of the Penn Central mainline and the Garden State Parkway. (A Metroliner station already exists at Lanham, Md.)

—Special directional signs for Metroliner users in all stations.

—Improved telephone service for ticket information, as well as improved reservation and ticket-handling-procedures.

—More employees assigned to Metroliner service.

—Credit card usage.

—Special ticket windows at main stations, and satellite ticket offices in center-city areas.

—Special waiting and boarding areas in stations.

Beggs said DOT assistance will eventually total $10.7 million, of which $6.2 million has already been paid. The railroad's investment in the project is nearly $50 million. It has including substantial rebuilding of the Washington-New York line.

CN's Edwards new president of AAPTO

P. George Edwards, system passenger sales manager, Canadian National, has been elected president of the American Association of Passenger Traffic Officers, succeeding C. C. Dilley, general manager-passenger sales and service and director-public relations and advertising, Milwaukee Road. Other new officers of AAPTO are R. P. Etheridge, Louisville & Nashville, vice president; E. L. Petersen, Santa Fe, executive committee chairman; and L. F. McCarthy, Canadian National, secretary-treasurer.

NEWS

Mansfield bill would phase out the ICC

Sen. Mike Mansfied (D-Mont.) has now introduced a bill to abolish the ICC in 18 months. While no one doubts the influence of the Senate Majority leader, no chance whatsoever is given for the bill this Congress.

Next year, however, the bill is certain to be reintroduced. Further, the Nixon Administration reportedly is working on legislative recommendations of its own that would combine the three transportation regulatory agencies—ICC, CAB, FMC. Next year will see an Administration decision on whether to pursue the plan.

Sen. Mansfield's bill would establish a special commission to determine the best way to phase out the ICC. It would complete its study in one year, and live on 6 more months to be available as Congress writes its recommendations into law. Presumably, in some mix, present ICC functions would be transferred to DOT or abolished.

Reaction in government and among the modes was mixed. ICC resolutely has refused to discuss the matter. DOT Secretary John A. Volpe has told his top aides not to discuss any regulatory reorganization proposal. A Senate Commerce Committee spokesman said, "Unless it would be the American Trucking Associations, I can't think of anybody who is happy with the ICC.

"While the ICC has been called up here to explain their procedures and encouraged to change them, it is . . . conducting the current railroad rate proposal the same way it has done in the past. They haven't changed."

The National Association of Motor Bus Owners last month passed a resolution at its annual convention opposing any change in the status of the ICC. Its president, Charles A. Webb, a former ICC commissioner, says the time eventually will come when the regulatory agencies ought to be consolidated. He does not see now as the time, however.

The rails' position is very clear. In their ASTRO recommendations, rails call for abolition of the ICC outright and creation of a new agency to regulate all transport modes.

The promotional aspects of FMC, CAB, and ICC would be transferred to DOT under the rail proposal so that the new regulatory agency would not tout one mode at the expense of another.

The ASTRO report expresses the view that in view of the increasingly intermodal nature of transportation separate regulatory agencies only perpetuate an incoherent national transportation policy.

American Trucking Associations opposes any and all plans changing the ICC. Its executive committee last June issued a policy statement pledging ATA's continuing supoprt of the ICC.

DOT launches "needs" study

DOT mailed questionnaires on Sept. 25 to state governors, mayors of cities of over 50,000 in population, and transportation leaders—the first step in preparation of its 1972 National Transportation plan, one part of which will be a Railroad Needs Study.

The survey is designed to define the areas in which public and private funds are needed through 1990 to finance highways, public transit systems, airports and other terminals, railroads, waterways, and pipelines, announced DOT Secretary John A. Volpe.

Rails and other carriers will furnish commodity and passenger flow information and their expected capital needs and planned investment on the DOT forms.

Each state governor has been asked to form a task force which, with DOT aid, will develop estimates of state transportation needs through 1990.

Secretary Volpe said the survey's object, the 1972 National Transportation plan, should not be confused with DOT's National Transportation Policy statement, which he said would be issued in January.

Volpe said the Plan with recommendations would be submitted to Congress early in 1972.

Court suspends PC trainoffs

Penn Central won ICC approval to curtail its remaning east-west long-haul passenger service on Sept. 30, but the discontinuances were suspended a few hours later by a temporary court order.

The ICC voted 6-1 to allow the road to discontinue 14 of 34 trains it had sought to eliminate, the largest such train-off in ICC history.

Hours later, a U.S. District Court in Pittsburgh granted a temporary restraining order sought by, among others, the Commonwealth of Pennsylvania, the National Association of Railroad Passengers, and the United Transportation Union.

Penn Central President William H. Moore said the ICC decision "offered our railroad some relief from its passenger service losses."

He said the road hoped to avoid $16 million in losses by discontinuing all 34 trains. He said the road could realize $2 million a year in savings by dropping the 14 trains.

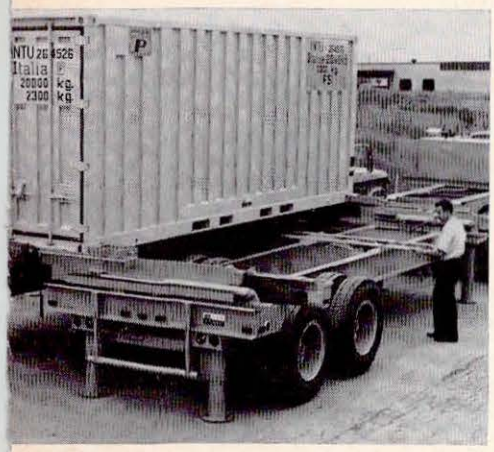
Moore added that if the remaining 20 trains still run at a loss after six months, "We will have no alternative but to return to the commission" to seek discontinuance.

In Pittsburgh, Federal Judge Wallace C. Gourley asked the Federal Circuit Court of Appeals to review the ICC decision. Judge Gourley issued the restraining order.

He recommended that Chief Judge William Hasties appoint a three-judge panel to review the ICC ruling.

Traffic Clubs name Mason as president

New president of Traffic Clubs International is George J. Mason, director of transportation and distribution, Wynadotte Chemicals Corp. TCI also elected Roger W. Gerling of Spector Freight as board chairman, and named three national vice presidents: William K. Smith of General Mills, Fred E. Deinas of Burlington Northern, and Miles F. Tamisiea of Hamms.



New container–transfer concept

Recent Canadian and U.S. container exhibitions featured a new low-profile side-transfer system developed by Canada's Steadman Industries. The Railtainer Corner-Pull concept is being studied for expanding COFC service in North America; the reduction in loaded height (actually a matter of inches) is seen as particularly important on overseas railways with restricted clearances.

Erie hauls grain in mini-trains

Erie Lackawanna extended its mini-train concept to grain hauling on Oct. 1. The first mini-grain-train—utilizing 10 new 100-ton covered hopper cars—operated between Monterey and Decatur, Ind. The cars were loaded at the Buckeye Feed and Grain elevator for delivery four hours later to Central Soya's Decatur processing plant.

Erie said the trains are designed to speed up handling of grain between elevators and processing plants—or between elevators and elevators. The trains will make three to five round trips every eight days, depending on demand. Under a new tariff, each train may serve any four elevators per trip.

M. F. Coffman, vice president of traffic for Erie Lackawanna, said the initial movement will involve corn, but movement of soy beans is also contemplated.

Getting the most from detectors

Hotbox deterctors have been around for a long time—but railroads are still finding ways to refine their use of the equipment, in light of experience and bearing performance. There is, for instance, the matter of relating a detector indication to a decision to stop the train.

And on Norfolk & Western, at least, the decision as to a bearing's condition is entirely in the hands of the train crew. "It is the crew and not the detector that determines whether the car will be set out or taken on," says J. M. Hesser, assistant manager communications and signals. Hesser told the Communication & Signal Section, AAR, meeting in San Francisco that N&W stops trains if any one or a combination of the following occur on the pengraph chart recording hotbox detector indications:

— A deflection of 16 mm or more.

—A differential of 6 mm or more between bearings on the same axle between the highest reading and the average of the other readings on the same side of the same car.

● **Roller-bearing set-offs.** N&W has experienced a large number of roller-bearing set-offs compared to the actual number of overheated rollers. One reason is the lower ratio; another is that train crews can lift the lid of a solid-bearing box and look inside, while they can't do this with a roller-bearing-equipped car. "Knowing the possible seriousness of a roller-bearing break-up, and not knowing the condition of the bearing, the crew will probably elect to take the safe course and set the car out," Hesser says.

"Many roller bearings run in an overheated condition because they have been over-stuffed with grease. While this is not a good practice, it causes little detriment to bearing performance until such time as internal pressure build-up in the bearing housing, because of the elevated temperature, causes loss of lubricant by the grease literally blowing out of the housing through the seals. Once this loss of lubricant occurs, the bearing faces the hazard of potential damage if continued in operation," said N. C. Pace, assistant to the vice president-communications, Southern.

The mixture of dirt and grease on the outside of the box apparently increases radiation from the roller bearing journal box. The increased radiation is interpreted by the detector as an abnormally warm bearing and the train is stopped.

● **Lightning too.** Can lightning cause hot boxes? Southern believes it has evidence to so indicate. "In May 1968," Pace says, "we experienced an all-time high in hotbox incidence. During this same time interval, we also suffered extreme lightning damage to communications apparatus and line equipment on our property. Hot weather is not yet prevalent in our territory in May. In May 1970, we had about the same hotbox incidence as in May 1968 and again during the same time interval we experienced heavy apparatus and line damage from known lightning storm occurrence."

The connection between lightning and hotboxes is based on the fact that electric currents flowing across a bearing interface can cause damage leading to failure:

"Since each journal bearing on a normal running car can exhibit some 2500 ohms resistance across its interface, it can be assumed that the car body structure is running along insulated by the lubricant films from the wheel, rail-earth electrode.

"Now assume that a lightning discharge occurs in near proximity to a train, not necessarily a direct hit. The atmosphere around the discharge assumes an electric charge as does any car body within the same partially ionized volume of atmosphere. The car charge accumulated on the car body can only dissipate through the bearings and wheels to the rail-earth electrode. And certainly, in some instances, rather massive current flow must occur," Pace points out.

"Text books on bearing technology state that electric currents of one milliampere or less from potential sources of one volt or less flowing across a bearing interface can cause damage leading to failure.

"This might explain why the hotbox incidence is higher in hot summer weather, simply because the lubricant barriers are thinner and therefore are more vulnerable to electrons, from millivolt sources, tunneling through . . .

NEWS

Lines on Labor

GUS WELTY

BRAC'S LOAN PLAN: WOULD IT WORK?

There's always a danger that a legislative body, faced with a number of alternatives in a given situation, will take the "safe" way out—which is to do nothing. This danger is very much present in Congressional consideration of ways and means to channel much-needed millions into the railroad industry. Perhaps, in this sense, a loan plan proposed by the Brotherhood of Railway and Airline Clerks will only serve to further muddy waters that are already pretty murky. But in the long run, BRAC's plan—involving borrowing from the Railroad Retirement fund—makes a lot of sense. It would tap a logical, available, "right" source. It could work.

RAILROAD MONEY: WHY NOT LET IT HELP RAILROADS?

BRAC makes an excellent point: Money paid into the Railroad Retirement fund is paid in by rail management and rail employees, and "in every sense of the word, those of us in the railroad industry may properly call it 'our money.' But what is this money presently being used for? The government is using 'our money' to guarantee mortgages, to build airports and highways, to fight poverty, to fight wars, and for almost every other activity carried out by the government. 'Our money' is on loan to the government. How it uses that money is the government's business, at present. But one thing is clear: Not one cent of the money we have loaned the government is directly invested in the industry from which it came. Not one cent is put back in to insure the development of a healthy railroad industry. Not one cent goes toward establishing new railroad services which would mean new and better jobs for railroad employees."

A GOOD PROPOSAL—WITH, PERHAPS, A BASIC WEAKNESS

Rational and "right" as BRAC's plan seems, however, it may have one crippling clause: No money could be loaned unless the borrower filed "a specific plan for using the money to improve existing passenger and freight services, or to add new services or facilities." A railroad caught in a liquidity crisis, strapped for cash to stay in business, would apparently not qualify. BRAC recognizes this problem. But, the union planners argue, if railroads got low-interest-rate loans from Railroad Retirement funds for capital improvements, this would "free up some borrowing power for other types of loans." At first glance this seems plausible—but a closer look gives rise to certain doubts that it would really work that way. So, BRAC's plan may be flawed—as what isn't, these days, except maybe Liz Taylor Burton's diamonds. And maybe BRAC's plan isn't the answer, for the immediate industry need. But at some future point, it sure deserves a positive look.

Wheels cast in starring roles

It was a case of "lights . . . camera . . . action" as railroad wheels—more specifically, wheel contours—came under the close scrutiny of a special Griffin Wheel Co. test team during an intensive, 13-day road-service study in late September and early October. Both TV and movie cameras whirred and other electronic equipment hummed away as a special three-car test train sped back and forth over a 20-mile stretch of Burlington Northern trackage leading north out of the road's rip track in North St. Louis, Mo. The cameras were focused on the point where the test wheels met the rail.

The object of the study is to determine how wheels of various contours and of different stages of wear react to varied, yet closely controlled, conditions.

Because of the volume of data and the length and detail of the study, it will take several months before a report on the findings will be available, advises the test team.

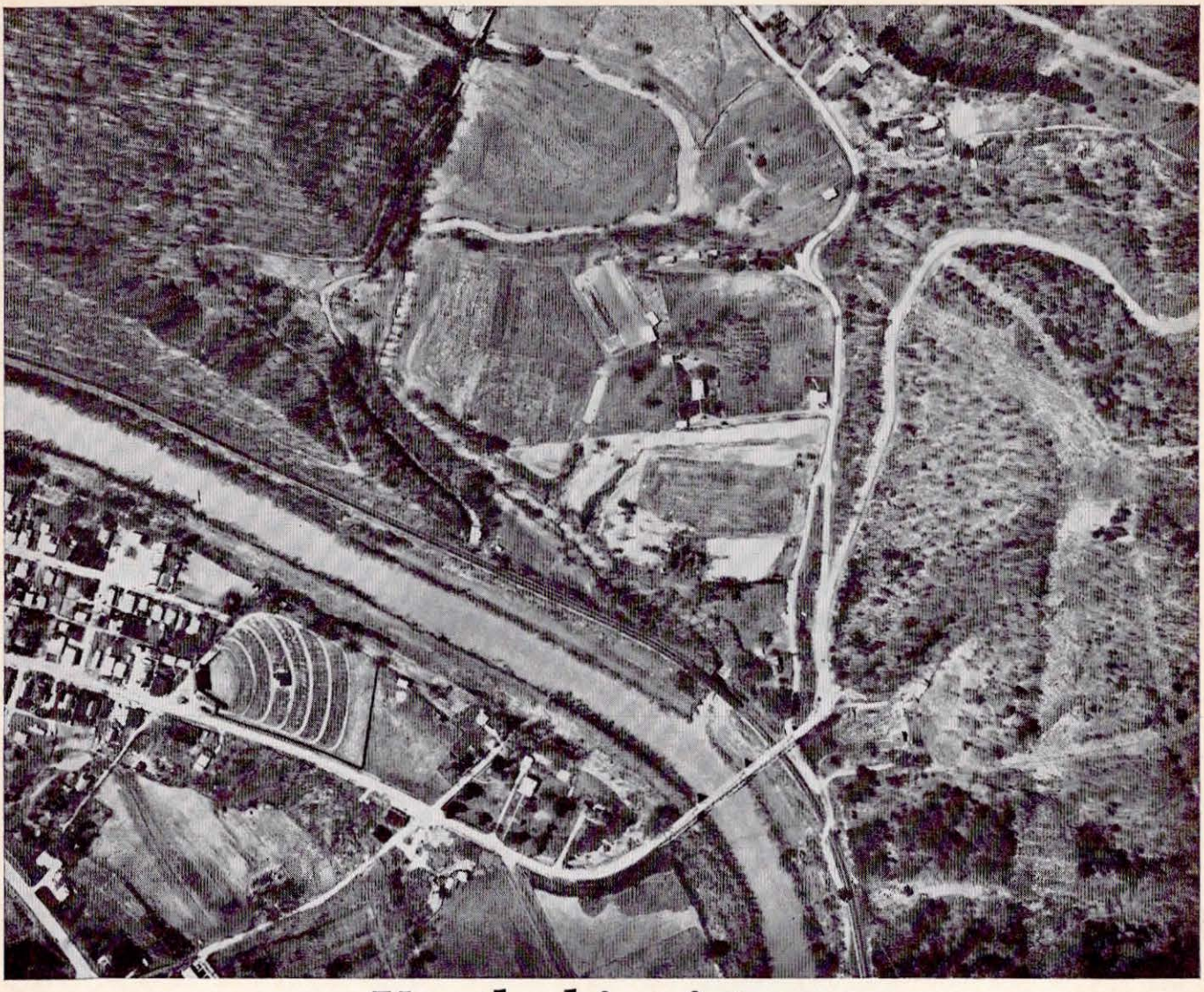
Growers awarded delivery protection

Acting on a Federal court order, the ICC on Sept. 30 told Eastern rails to refile for freight rate increases on vegetables and melons.

ICC had approved the 7% to 13% increases in March, and they went into effect April 1. But a three-judge court in Washington on Sept. 18 at the request of local "Ad Hoc Committee on Consumer Protection" remanded the case to the ICC for reconsideration.

The judges said rails should have included in their tariffs a guaranteed scheduling policy.

ICC said the new tariffs must include a statement by the rails on resuming payments of damage claims to Western growers when late delivery causes losses. The judges had said the rate increases violated the Interstate Commerce Act because they had failed to include terms of the loss-guarantee payment agreement.



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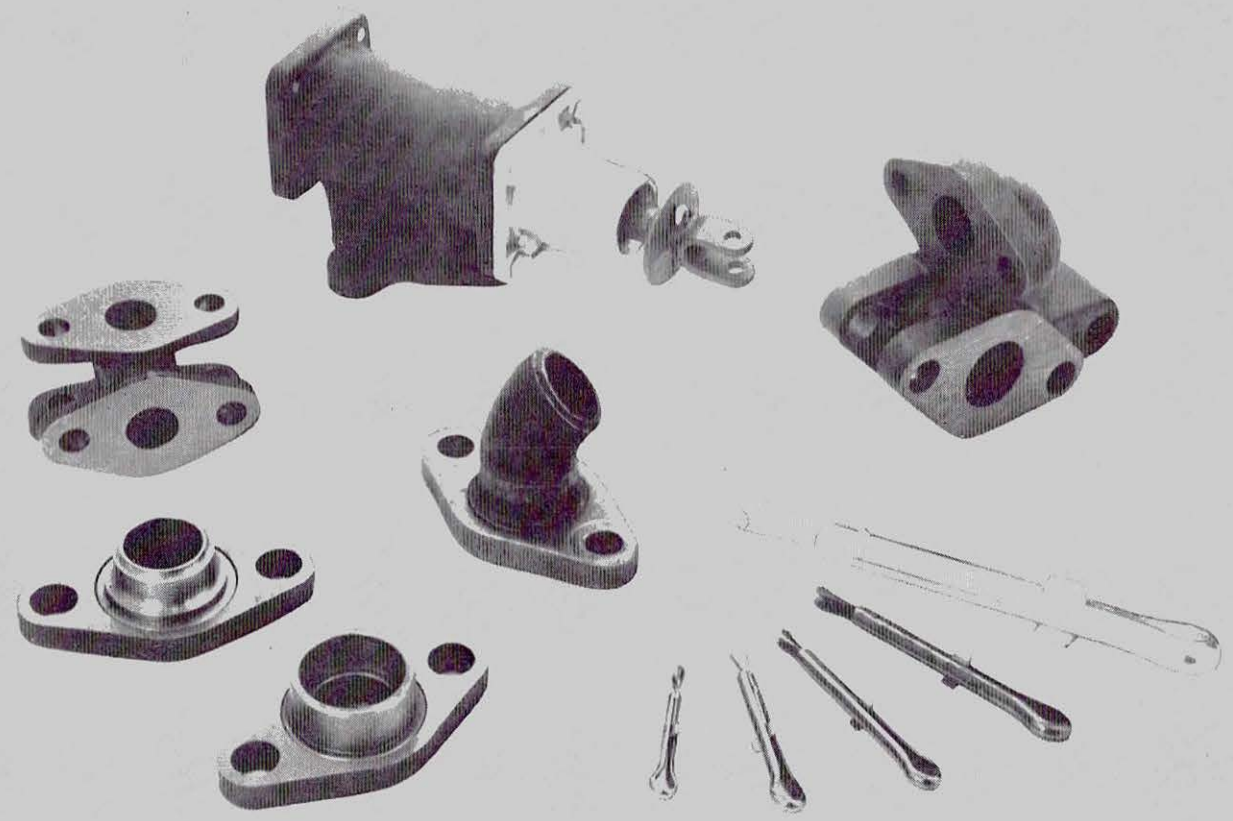

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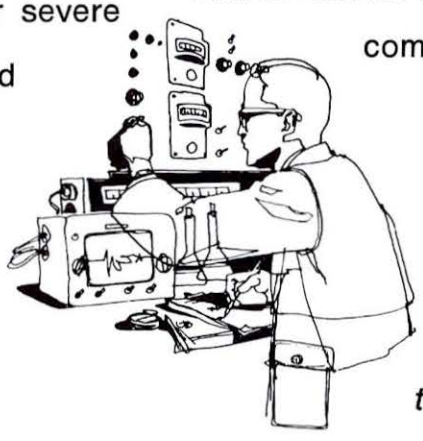

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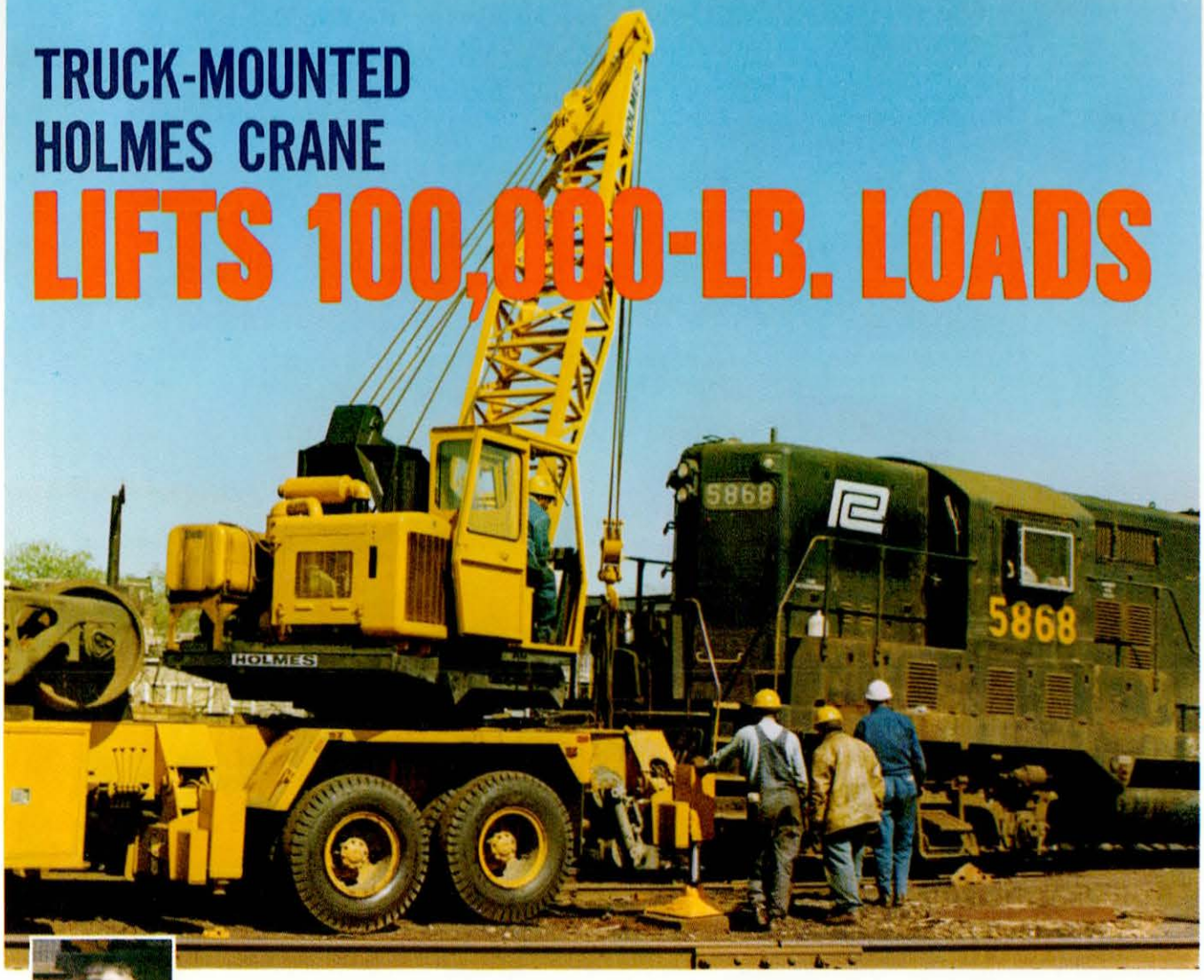

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"Renaissance" seen for mass transit

The legislative logjam in Congress has finally started to loosen—and one result has been overwhelming approval by the House of the $10-billion transit aid bill. A salient feature of the bill, as approved now by both the Senate and the House, is that it will give the Department of Transportation authority to commit—through the little-used device of contract authority—funds totaling $3.1 billion in the next five years. This means that funds may be obligated before they are actually appropriated.

Dr. William J. Ronan, president of the Institute for Rapid Transit and chairman of New York's Metropolitan Transportation Authority, called the House action the "beginning of a major renaissance" for U.S. mass transit.

"Passage of this measure means that urban mass transportation in the United States is beginning to receive the same kind of consideration that has been devoted since the end of World War II to the Federal highway program," said Dr. Ronan. "We believe that this new bill will mean a renaissance for the effort to end the major problem of urban congestion that now confronts the nation's metropolitan areas. For the first time, the cities of the United States are assured of the long-term financing necessary to plan and build the large public transportation facilities that are required to conquer the problems of more automobiles, of more people and of more and more constricted space."

DOT Secretary John A. Volpe has estimated that the $10 billion in Federal aid will help to generate a mass transit market totaling $20 billion in the next decade. The Federal funds are to be matched, on a two-to-one basis, by local funds. This means that a locality that gets $200 million in Federal aid must put up $100 million of its own. In many areas, such as New York, the local funds will amount to more than the one-third minimal requirement, due to the availability of money from bond issues and other sources.

Dr. Ronan viewed the tremendous support for the transit-aid bill in Congress as a "victory for a balanced approach to . . . urban congestion."

He said the Institute for Rapid Transit "looks forward to continued close cooperation with the American Transit Association, the National League of Cities, the U.S. Conference of Mayors, the Railway Progress Institute, and many other organizations which have cooperated to achieve this progress."

Watching Washington

REID BEDDOW

A PROPHET WITH HONOR

Contemplate James D'Orma Braman, for 12 days now an ex-Assistant Secretary of Transportation but forever a prophet with honor in his own time. His departure from office on Sept. 30—at 69 he thought it time to retire—was lamented by men of both parties, by the transit industry especially. He will be missed. A man of short physical stature and gentle gray-haired appearance, Mr. Braman was DOT's outstanding and implacable foe of the Road Gang. No public official in years has fought the highway lobby so cheerfully, giving no quarter. Usually, he won.

DOT'S "CONSCIENCE"

It was DOT Secretary John A. Volpe himself who last month put his finger on Mr. Braman's most appealing quality. He was, said Secretary Volpe, "the conscience of this department." As head of the very small Office of Environment and Urban Systems, Mr. Braman made it his business to defend human and environmental values from the onslaught of the bulldozer and the concrete mixer. He stove off a highway which would have cut through Franconia Notch in New of the Mountain rock formation). Similarly, he rescued the Hampshire (and would have despoiled the famous Old Man French Quarter of New Orleans and Overton Park in Memphis from freeways. He took on the airlines by assembling the scientific data that proved a proposed jetport for Miami in Everglades National Park to be a threat to rare wildlife. Mr. Braman worked quietly, marshalling his facts and without inflammatory rhetoric. While the foregoing constituted a remarkable achievement for a person in office only 19 months, his impact on urban transit planning was even greater. Mr. Braman was the chief advocate within DOT of the financing device in the Urban Mass Transportation Act of 1970 which permits UMTA to commit funds to transit authorities before Congress actually appropriates the money. With the U.S. government pledged under the act to commit $10 billion over the next dozen years to mass transit, he leaves the transit industry a sizeable legacy.

Mr. Braman acquired his transportation convictions as Mayor of Seattle for five years. "Mayors . . . still think their downtown areas will be helped by freeways," he has said. "This has not proved out anywhere. What they forget is that a road than can bring people downtown can also take them out to shop in suburban shopping centers. Most expressways are escape routes, not access routes." This sort of heresy earned him the enmity of the highway buiders, whom he in turn gleefully called "predators on the environment." It is known he felt no sorrow about the recent primary defeat of Rep. George H. Fallon (D.-Md.), chairman of the House Public Works Committee, and Mr. Highway himself in that body.

Now, with firm intentions to go skiing and mountain climbing, Mr. Braman has said adieu to public office. It is to be hoped that he has not said goodbye—that the transit industry can persuade him periodically to offer counsel.

Exclusive interview with Dr. William J. Ronan

New York's MTA puts railroads in the picture—in a big way

Photo by Maurice H. Mates

New York's Metropolitan Transportation Authority—which already controls rail, subway, bus and related facilities used by 9 million riders daily—is now preparing to bring more railroad commuter lines into its empire. It all adds up to good news for (1) railroads, whose commuter operations have long been a costly burden; (2) commuters, who will get vastly improved service; and (3) suppliers, who will get new orders worth hundreds of millions of dollars. In an interview with Railway Age, Dr. William J. Ronan, MTA chairman, described plans for re-equipping and operating these lines—and discussed the broad implications of New York's bold, multi-billion dollar attack on mass transportation problems, which many believe will set a pattern for the nation, and perhaps the world.

Q. It's been 2½ years now since the Metropolitan Transportaion Authority was created. What does MTA now encompass?

A. At the present time we own and operate the Long Island Railroad, which is the property we've had longest. We have responsibility also for the policy direction and control of the New York City subway system—NYCTA—and the Manhattan and Bronx Surface Transportation Operating Authority, which is the old privately owned bus lines that were taken over during Mayor Wagner's administration. We direct the fortunes of the Triborough Bridge & Tunnel Authority, with its bridges, tunnels, exhibition halls, garages and office buildings. We own and operate Republic Air Field on Long Island as a general aviation airport, and we have Stewart Airport under lease from the Defense Department. These are the properties for which we are responsible at the present time. I would say they involve 56,000 employees. They involve daily use by about nine million people; and have assets worth billions of dollars. In the very near future, we will be taking over responsibility for the Staten Island Rapid Transit system.

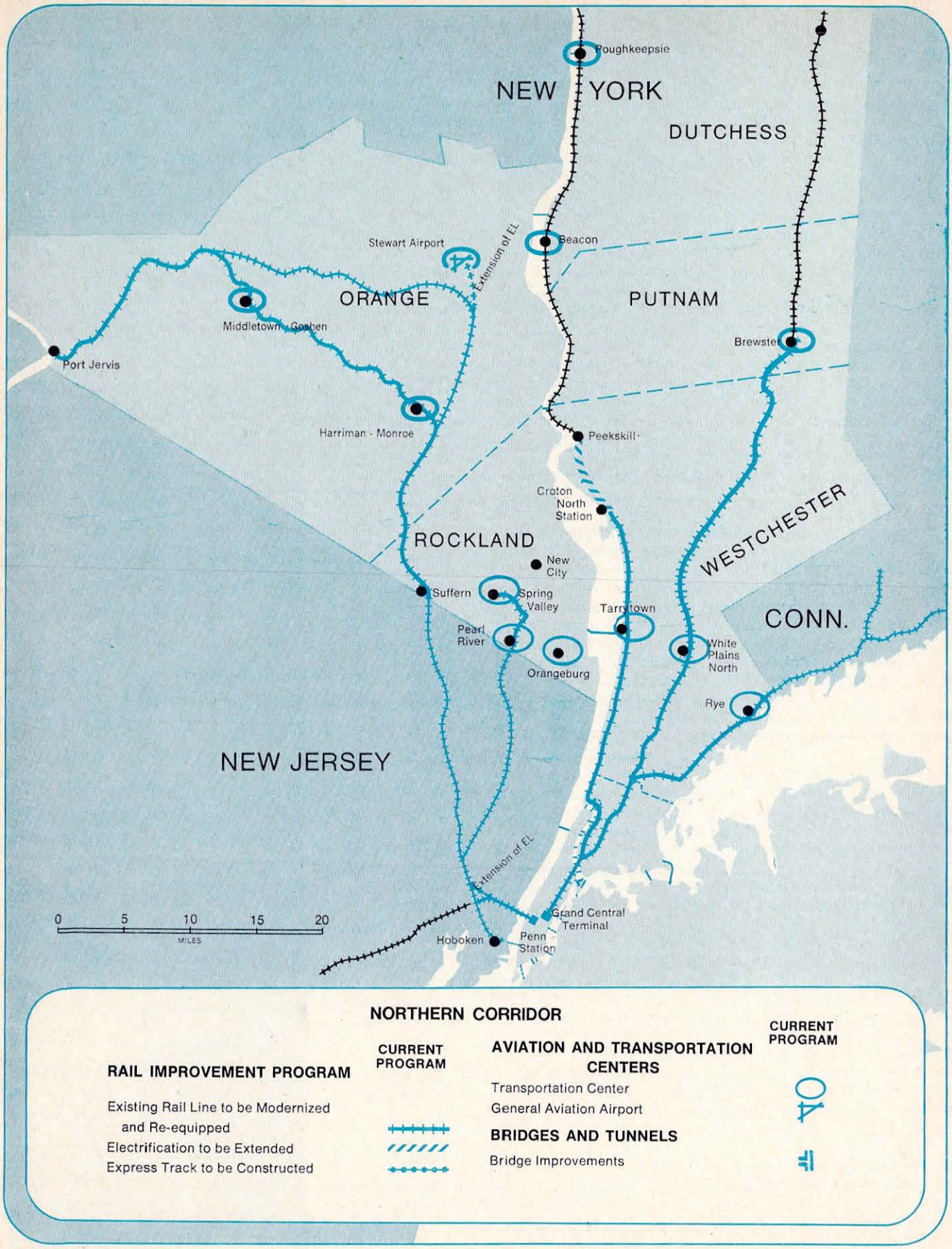
Q. And you are also broadening your rail commuter responsibilities. . . .

A. Yes, we will shortly assume responsibility, jointly with the Connecticut Transportation Authority, for commuter service on the former New Haven Railroad. MTA will buy the right-of-way from Woodlawn to the state border, and the Connecticut Transportation Authority will lease for 60 years the right of way from the border to New Haven. With some Federal aid, MTA and CTA together will acquire 144 new cars, purchase and rehabilitate 97 1954 m-u cars, and otherwise assume responsibility for commuter service. Penn Central will operate the service for the joint state account.

The carriers will operate the trains —MTA will pay the bills

We are also well advanced in the plan to take over the ex-New York Central's Harlem and Hudson Divisions. The arrangement negotiated with the previous PC management has been submitted to the trustees. Meanwhile, we are negotiating with the Erie Lackawanna Railroad for the assumption of some responsibilities for commuter service from Port Jervis, N.Y., to and through Suffern and thence down through New Jersey to Hoboken. We have asked equipment manufacturers to submit proposals for up to 10 gas turbine electric cars. These types of cars will be used on the Erie Lackawanna and other commuter lines. We have the money with which to order prototype gas-turbine electric equipment following the experiment on Long Island with the Budd-Garrett test car and a simulation study done by General Electric Co. as a companion to it.

Q. What has centralization of transportation responsibility meant so far for the New York area commuter and transit rider?



EXPANDING EMPIRE: Rail commuter lines for which MTA will soon assume responsibility are Penn Central's New Haven Division, to the Connecticut state line; PC's Harlem Division to Brewster; PC's Hudson Division to Peekskill; and Erie Lackawanna Port Jervis-Suffern and Spring Valley lines. Access to Stewart Airport via EL is also planned. Not shown are existing properties such as LIRR, and New York's subway system, and soon-to-be-acquired Staten Island Rapid Transit. Expenditures totaling $300 million have been marked for rail commuter lines.

A. There have been some immediate benefits. The ordering of new equipment has been expedited. We have obtained new equipment for the Long Island Railroad. There are now about 400 of the new Metropolitan cars in the LIRR pool, and every day about 50% of all commuters in the electrified zone are riding on this new equipment. Now this is a vast change from what existed before.

Another immediate benefit has been the ordering of 352 75-foot subway cars, now being manufactured by the St. Louis Car Co. These cars will have more modern exterior design, attractive interiors, contouring of seats for individual seating, better lighting, better air conditioning and will provide a much quieter and safer ride. This is a direct outgrowth of our experience with the Long Island cars. Also the new New Haven cars would not have been possible without this kind of central direction and control.

Of course, the most spectacular element in the whole picture is the 63rd St. Tunnel coming from Queens to midtown Manhattan. It will be used by both the subways and the Long Island Railroad coming into east midtown. That is going to change very materially, if not revolutionize, travel to the East Side of Manhattan.

Q. Have the Metropolitan cars been pretty well debugged?

A. Yes. At any given time only 15% to 20% are out of service and this includes those cars awaiting parts, which have been very slow in coming in from our suppliers.

Q. What equipment plans does MTA have for the Hudson and Harlem divisions?

A. Eighty new m-u cars will be ordered within the next six months. These are similar, almost identical, to the Metropolitans. Existing m-u cars will be purchased from Penn Central —about 100 built around 1950—and MTA will assume PC's obligation on 87 m-u cars purchased under the Port Authority Commuter Car program in the early 1960's.

Q. Is MTA acquiring any second-hand equipment from other railroads?

A. Yes. Seventy-one such cars have been put in service on the Long Island since 1965, and 54 are being or have been purchased for Penn Central. Eleven will be bought for Erie Lackawanna.

Q. How much money will MTA invest in capital improvements over the next five years altogether, on the subway system, commuter railroads, bus lines?

A. We will be committing somewhere between $2.1 billion and $2.8 billion. The disparity between these figures indicates some concern for inflation, but it also involves how much we actually will spend in some areas where we have not yet really done the detailed engineering. Nor do these figures include the cost of some of the transportation centers projected for the New Haven between New York and the state border which we believe can be almost self financing. Air rights developments plus rental of parking space, office space and so on will help carry the cost of these projects.

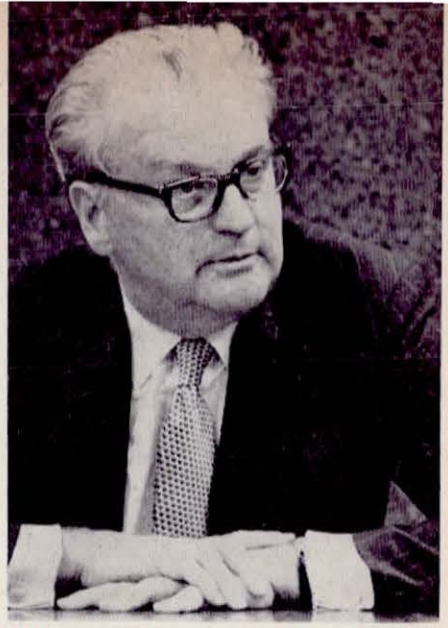
Q. Where will this $2 billion-plus come from?

A. Partly out of the New York State bond issue, where $600 million has already been appropriated for subways. Additionally, some $300 million of bond money and other monies has been made available for commuter railroads. The New York City Board of Estimate has pledged completion of the subway improvements with city funds that are necessary to supplement the state's $600 million. We are counting on Federal monies in a very substantial way to assist in this total program and for that reason have been very much in the forefront of the movement to have Federal funding on a much wider and broader base than it has been in the past. Out of the upcoming Urban Mass Transportation Assistance Act, we would hope to receive an allocation of up to $750 million. But we don't think this should be the end of Federal funding. Beyond the five-year period, we would anticipate much more. We are ready to file applications for literally billions of dollars for mass transportation construction, all of which is needed in our region.

Q. Getting back to the commuter railroads—you would not in fact operate these. Who would?

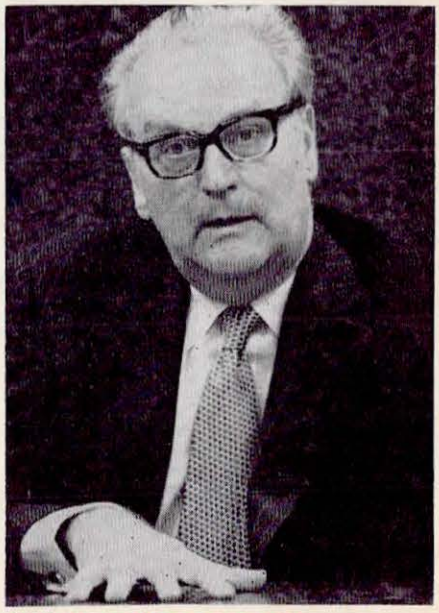
A. The actual operation would be by the common carrier, the Penn Central in the case of the New Haven and the Hudson and Harlem divisions. In other words the MTA would not become a common carrier.

Q. Would your lease arrangement with PC include—and if so, to what extent —concern about the quality of the



"Our approach has headaches

. . . financial and political . . .



but it makes sense"

roadbed and the need for upgrading?

A. Very much so. The program calls, first of all, for the re-signaling of these lines, and for the admission of reverse signaling and the introduction of a sufficient number of interlockings to permit reversals or bypassing of trains. In addition, we must upgrade the power systems, the right of way, and the stations. The arrangement is basically this: that the Penn Central, as the operator on our behalf, will render the service that we require—the schedules, frequency, and number of trains. The nature of the service to be rendered is really a matter of our policy determination for their execution. This means also that in the capital plant itself, it is our responsibility to upgrade track, signals, the power system, and the equipment.

Q. Would you subcontract to them, in effect, the job of this upgrading and other changes required?

A. In some cases we would contract with Penn Central. In other cases there would be a direct contract between us and a construction company or power company. We're flexible in that respect.

Q. In all cases, the bill for the work done would come to you?

A. The bill for the construction will come to us and we will be governing the terms and conditions of the contracts.

Q. This would differ then from the arrangement which the Department of Transportation has with the Penn Central insofar as the Metroliner right of way is concerned? In that case the railroad undertakes the work to its own account.

A. Yes, it will differ in that we will be in control of the situation. In other words, the railroad will do what we request, and since we are footing the bill there is no real problem. But I would emphasize that they will actually operate the trains, they will employ the labor—we will not. And in this way they are the carrier—we are not.

Q. Is that something you wish to avoid?

A. It's just a matter of convenience. We do not believe you can have two managers on the same right of way. The freight service and whatever long-haul passenger service exists will be run by the Penn Central. The railroad will operate this freight and long-haul passenger service up to the limit of what existed as of the time of our negotiations.

Q. Since you will own the right of way, will you charge PC for running freight trains over this line?

A. Actually, they will bear only their allocated cost. In negotiating a purchase price on the right of way from Woodlawn to the state border, for example, the price finally arrived at included within its consideration the privilege to operate freight without a lease charge. However, they will share certain costs. Those costs involved in operating a freight service as such would be Penn Central's responsibility. In other words, we are not going to pay for the operation of freight.

Q. Will your arrangements with other commuter lines follow the New Haven pattern?

A. MTA has a very wide latitude in the nature of the relationships which it may develop with existing rail commutation services. In the case of the New Haven, it seems the better part of business judgment to purchase the right of way, because this gives us title to properties which we believe can be developed to the advantage of the commutation service. The stations are in a very serious state of disrepair; they need to be modernized. We want to see better parking facilities. By actual control of the title, we're in a much better position to do the redevelopment of the stations and the station areas in cooperation with some local communities.

With respect to the Harlem and Hudson divisions, our negotiations have taken a different turn. Here we have a tentative arrangement, subject to the approval of the trustees and the Federal court in Philadelphia, for a lease of these rights-of-way for $1 a year. Each situation has to be judged in terms of its history and its current situation. In this case, important freight lines are involved. Our appraisal is that with a 60-year lease we can accomplish our objectives, without getting into some of the very grave difficulties that would be involved in any other approach because of the complex corporate structure of the Penn Central system, a complexity which, strangely enough, did not exist with respect to the New Haven. Therefore, the most expeditious way of advancing the Harlem and Hudson divisions is through a lease rather than through any purchase arrangement.

Q. Why did you select 60 years?

A. Sixty years is double the life, roughly, of any equipment we might put on the property; and if one can look ahead 60 years, one is doing pretty well. That will take us to the year 2,030. It is also the figure worked out in the lease arrangement between the Connecticut Transportation Authority on the section of the New Haven between New Haven and the state border.

The arrangements which we're making, whether it be with the Penn Central for the New Haven or the Harlem and Hudson lines, or the upcoming arrangements which have not yet been negotiated with the Erie Lackawanna —each has to take into account the historical relationship of these railroads to the region, the corporate structure involved, and the nature of the services that are rendered by those railroads. In the case of the Long Island, we purchased the entire railroad, but the Long Island is 95% a commuter line. On the other hand, the Erie Lackawanna line that concerns us runs through northeastern New Jersey and then into New York State, from Suffern over to Port Jervis. This is very heavily a freight line. The Harlem and Hudson divisions are lines that have been used extensively in the past for long-haul passenger service, as well as commutation services. The virtue of the statute we deal under is that it allows us flexibility to arrive at solutions that take into account the differences in legal structure and history and economics.

Q. Will you be interested, at some future time, in the Lackawanna commuter line west of Hoboken?

A. We are very much interested now. Of course, largely the Lackawanna is rendering a service within New Jersey, even though this service is oriented, much of it, toward Manhattan. The State of New Jersey has been moving into a program under the New Jersey State Department of Transportation to improve those lines. We are working with New Jersey on the Erie Lackawanna as it operates both in New Jersey and in New York. While the Erie Lackawanna now carries fewer people than the Harlem and Hudson or New Haven division or the Long Island, we see a great potential as Rockland County and Orange County develop. And of course, we're interested in Erie Lackawanna because we have Stewart Air Force Base, now Stewart Airport, under the MTA. We already are progressing plans with the Erie Lackawanna for a connection with Stewart in

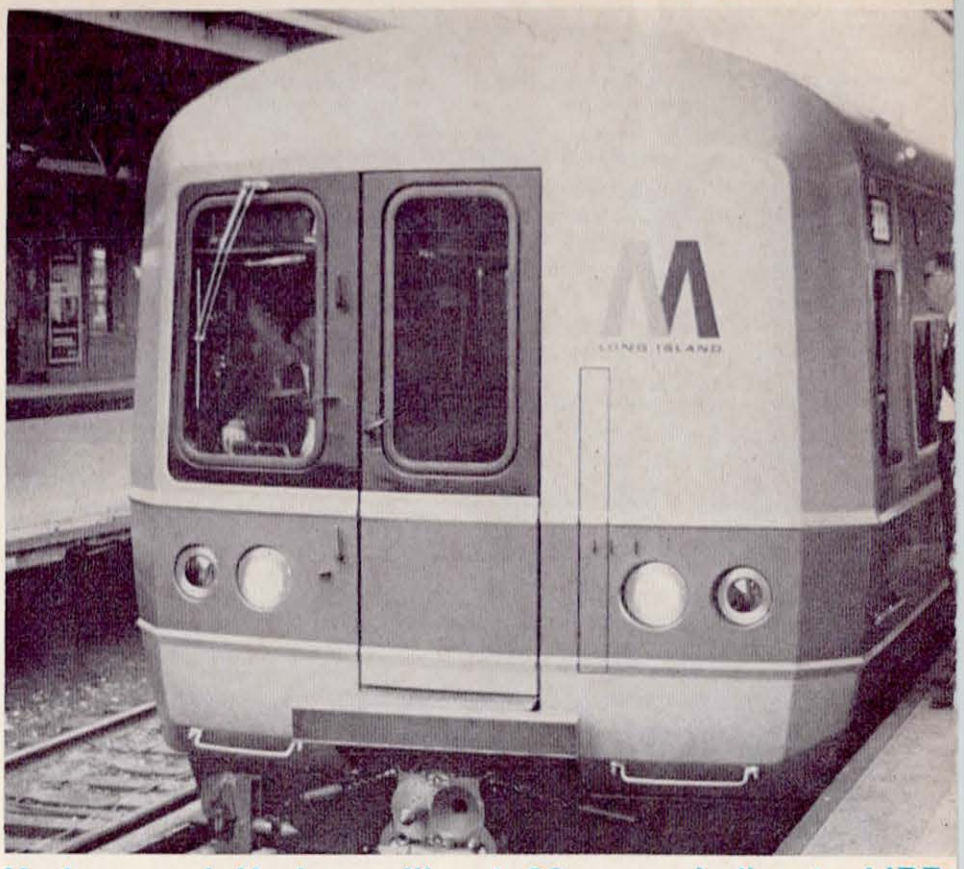
terms of development of air cargo service which could be linked with the railroad, as well as future passenger service from Stewart down to New York. We've been working closely with New Jersey and the bi-state Port of New York Authority and we are participating in a three-way study of the Trans-Hudson commutation problem. One of the things very much in our minds is the possibility of Erie Lackawanna trains coming into Penn Station.

Q. You have been approached by the British promoters of "Hovertrain" in connection with passenger service to Stewart Airport. Does this interest you at all?

A. With respect to Stewart, our immediate concern has been to develop this as a general aviation facility. We have kept our options open. With respect to access to airports, our present reading is that access by motor vehicle is just not feasible in this region—certainly not for Kennedy. We've been working with the Port Authority and the airlines on the Kennedy access link from Penn Station and from Jamaica to JFK. Stewart, we think, also should be tied in with rapid transit service and our initial approach is to connect the rail line of the Erie Lackawanna which is roughly 2.1 miles from the airport, and thus obtain a rail connection at relatively modest cost. We do not rule out developments that are taking place in new technology. We've been interested in the development of the linear induction motor and its potential use in urban transportation. We've been interested in air-cushion vehicles and have an interest also in magnetic field suspension vehicles, all of which are at long last getting a little more attention in terms of R&D. We've been encouraged by DOT Secretary John Volpe's interest in some of these areas as well as his support in advancing the technology of our existing systems which is our immediate and I think most promising area.

Q. The bids on the 144 cars which you propose to acquire for service on the New Haven division were substantially in excess of the amount you had budgeted. Will you now scale down that number?

A. As a result of a recent meeting which we had with Secretary Volpe's people in Washington, I'm encouraged to believe that we will not have to scale down the number. We have the bids under analysis to further refine our own judgments with respect to the validity of the bids; but I would say that out of the Washington meeting we came away with the firm conviction, all of us, that we need the 144 cars, and I am optimistic at this point that we will be able to get them.



Hudson and Harlem will get 80 cars similar to LIRR

Q. At the bid price—around $422,000 per car? . .

A. I am not prepared, at this point, to say what the price would be. We are reviewing the specifications, we're reviewing the bids and we have asked our engineers to come up with a judgment as to the reasonableness of the price. Remember, the invitation to bid goes back to 1967 and there's been considerable inflation since that time. So in fairness to those who bid, and principally in fairness to the state of New York and the state of Connecticut and the riding public, we want to be sure that these are reasonable and fair figures.

Q. Have you considered locomotive-hauled push-pull trains for that operation?

A. We did, before we went to the m-u specification, and we came to the conclusion that a locomotive-hauled service would not be desirable, because it is not as flexible and cannot give us the performance that individually powered or married-pair-powered cars can give. We do not want to relegate the New Haven service to a second-rate service. This must also be considered in conjunction with the Harlem and Hudson service because they share some trackage from Woodlawn into Grand Central Terminal. We're looking forward to upgrading the Harlem and Hudson equipment to the kind of performance specifications that the new Long Island cars have, with high acceleration and rapid braking. We are looking to attaining a speed of 100 miles an hour. The number of times the New Haven service might reach 100 miles an hour will be limited—but it is important to be able to achieve it, especially in terms of acceleration.

Q. Would you be willing to buy equipment abroad, if that seemed to be the economical way?

A. We have never adopted a policy which excludes foreign acquisition of components or equipment. In fact, we have bought a fair amount of our electrical sub-station equipment from English Electric. They were the low bidder in a number of our contracts, just as General Electric was the low bidder on similar sub-station equipment. So we have not ruled out foreign bids.

Metropolitans.

With respect to foreign procurement, there are these elements to be considered: the reliability of the source of supply; the problem of language; and to some extent the problems of the foreign manufacturers' sizes and scales and measurements. Some of these are on the metric system; ours is on the inches and foot system. There is the difference in screw threads, and many similar problems. All of this enters into the picture in terms of the foreign manufacturers being able to meet specifications. And we are concerned that we have reliability built in, that is, that the manufacturer has built equipment which can perform. To some builders, both domestic and foreign, this poses a problem. I anticipate that in the future we will have additional bidders, both in this country and perhaps from abroad.

Q. Were foreign bidders invited to participate in the bidding for the New Haven cars?

A. They were not excluded. We circulated the entire free world with the specifications on a preliminary basis, as we did with the Long Island cars, and we had inquiries and purchase of these specifications by numbers of foreign manufacturers. But we did not have a foreign bidder on the New Haven cars. Of course the New Haven car is a very complex and very sophisticated piece of equipment. St. Louis did not bid and of course the Budd Co. had decided to go out of the business before this time. So we had two bidders, the General Electric Co. which for the first time entered the lists as a prime contractor, and the Pullman Co.

I would assume that GE entered its bid in line with corporate policy which I understand they have adopted, namely that if they as a supplier are going to build 65% or more of the value of a car, and have to stand behind it, they might just as well enter as a prime contractor and build the entire car.

I would guess that on the New Haven bid that the rail supply industry, out of the experience of the Metroliners, out of the experience of the Jersey Arrow which was built by St. Louis, out of the experience that the Budd Co. and its suppliers had on the Long Island's Metropolitan cars—that out of all this, the suppliers had become sensitive to the systems engineering and interfacing problems involved.

Q. Would GE actually build the car shells?

A. I got the impression, and it's only an impression, that the General Electric Co. in the long run plans to have facilities of its own.

Q. Are you optimistic, at this point in time, for improved mass transportation in this country as a whole? Are we headed, do you think, for a sensible national policy and funding?

A. I think we are. I think the urgency for Federal funding is great. The emphasis which is at long last being placed upon mass transportation is long overdue. Public awareness of the need is very great now, and it is also becoming increasingly good politics to support mass transportation. We have seen the New York State leadership in the billion-dollar bond issue which Gov. Rockefeller recommended and campaigned for successfully; the creation of the Connecticut Transportation Authority with its funding; the work of the New Jersey State Department of Transportation; Massachusetts, with the MBTA; and SEPTA in the Philadelphia area—all of these are indicators of widespread dissatisfaction with the imbalance in transportation that has existed and an urgent expression of the need and desire to move ahead in the urban field. I think the Bay Area situation in San Francisco, the fact that BART is being completed and that BART will begin test operations before too long, will be a great incentive for a good many communities that are looking forward to the establishment of new systems; and the Washington metropolitan area situation is another case in point.

I would say that the progress is significant, but at the same time we need acceleration of Federal effort, because the problem we confront is one of an awful lot of time lost. The lead time in creating new facilities is substantial, as is the difficulty in upgrading existing systems. We in New York don't have the luxury of building total new systems; we're upgrading systems that were neglected for 15 to 50 years, and this is a very difficult task. It takes a massive capital investment. You must maintain service continually while you're doing it and shore up the existing system while you modernize it, and you don't have the joy of ribbon-cutting for a new facility. Nevertheless, we're building 52 new miles of subway extensions—an unprecedented feat.

Q. Do you think that the kind of pattern that has been evolving in New York is going to be a pattern for the nation? That is, the greater and greater assumption of public responsibility not only for rapid transit but for commuter railroad operations?

A. I think so. I think you will see in the metropolitan regions of the world, actually, a move toward this type of structure, where you place responsibility for mass transportation within a region in the hands of a metropolitan area regional body. This would include commuter railroads as well as rapid transit systems, and bus operations. The logic of this is evident, and I would not be at all surprised to see other metropolitan areas in this country and abroad move in this direction.

We have had a great many visitors from other parts of the country, and with all the problems that we have, we have been able to begin to create an interrelationship and a balance between the commuter railroad, the subway, the bus, improved parking facilities, transportation centers, and the tying in of airports with rapid transit. In places as far away as Tokyo, and as close as Philadelphia, there are similar moves that indicate the recognition of the need to move on a regional basis and in a planned way.

If we're going to really maximize the facilities that exist there really isn't much to be said against this kind of approach. It has its headaches—financial, organizational, political. But it makes sense. ■

TOMORROW'S RAILROADS IN ACTION

According to railroad mythology, some properties would survive and prosper even with the worst imaginable management—while others would defy managerial genius of the highest order.

Today, mythology is being exploded—or at least rewritten. Today, there are few if any roads that can hold their own without top-quality management. There are some that wallow in quicksand despite excellence in management. And there is not a one that will be a living, breathing "tomorrow's railroad" without the kind of managers who are able to (1) run the railroad today, (2) plan how to run it tomorrow and next week and next year, and (3) lend a hand to the vital job of unchaining transportation from yesterday's policy/legislation/regulation.

That kind of manager is made, not born. And the "making" process is neither easy nor cheap.

Some roads just naturally come to mind, in any listing of companies that do a full-range job—Southern, Southern Pacific, Chesapeake & Ohio/Baltimore & Ohio, for just three examples out of many that could be cited for top-drawer performance in recruiting, training, follow-up.

In this issue, in No. 10 in the "Tomorrow's Railroads in Action" series, Railway Age looks at two other groups of activists—the personnel officers at Chicago & North Western and Santa Fe—and at what they are doing to build a management for tomorrow.

How C&NW trains its top management of the future

A wide-ranging series of training programs helps to find the personnel to run tomorrow's C&NW—and better ways to do it.

Chicago & North Western may well become the country's only major employee-owned railroad. A sale agreement has been reached, subject to ICC okay. But whatever happens on the sale plan, C&NW today is shaping up as a railroad with increasingly effective management (and President Larry S. Provo intends that things will continue moving in that direction). A good share of the credit for this spreading of competence has to go to a personnel-development effort begun in the late 1960s and now coming to maturity.

When this new effort began, there was hardly even a base to build on. In the modern-management sense, North Western didn't have a personnel operation.

So, its top management assembled a young, high-talent group and set up a department with four main functional sub-departments—for employment, training, appraisal and evaluation, and personnel services.

Today, Vice President-Personnel R. W. Russell is running a somewhat streamlined operation. Employment has been moved into the services area, for example—and a good part of the effort can now be devoted to refining programs and policies that began taking shape almost at the start.

● **Expansion in training.** This is not to say that new wrinkles are not being added. A year and a half ago, J. D. Lines, then training director, confessed that he had a tough time keeping in mind all the programs under way or planned (RA, Feb. 17, 1969, p. 32). Today, as assistant vice president, Lines has to stretch his memory even further—with more than 40 separate programs working regularly or on a demand basis or in the planning stages.

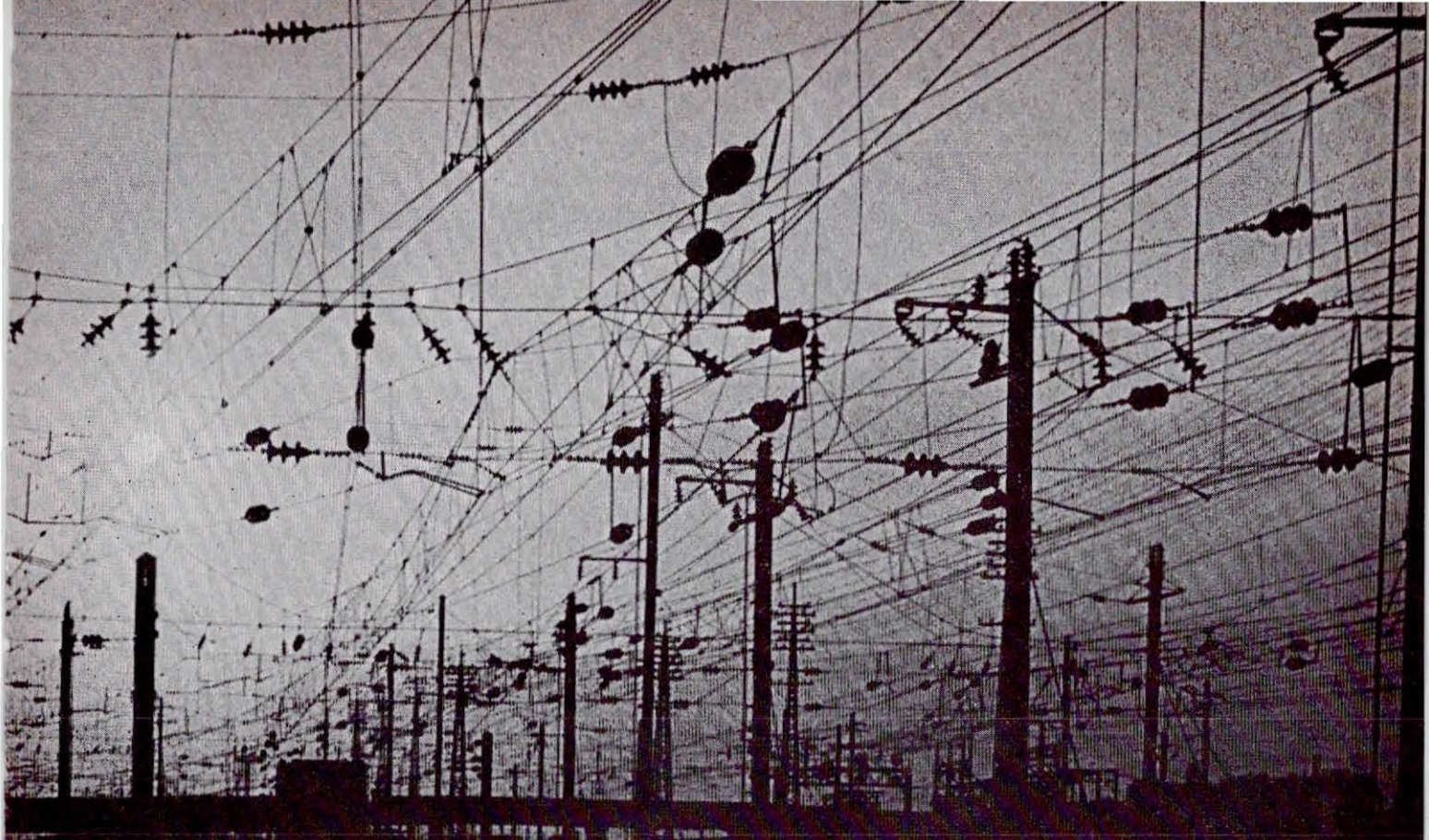
The story is much the same where Personnel Services Director R. L. Wilson was operating. Now, it's Assistant Vice President Wilson. The key programs he was developing back in 1968-69 are in and working—such things as a comprehensive salary administration program with a built-in merit system. These programs would take on added meaning if C&NW had more dollars available to work with. At the same time, North Western is convinced that they have shown significant results in terms of employment control, payroll control and effective and equitable distribution of payroll.

A third key sub-department covers essentially what used to be called the evaluation and appraisal area. It is now headed by Z. D. Ford, manager-career development—and it's from the pioneering appraisal work of several years ago that North Western has moved into a brand new management style. Some would call it management-by-objectives. C&NW people prefer to call it management-for-results.

● **Goals and measurements.** Management-for-results is planning plus follow-up—the specific planning stretching 18 to 24 months in advance and the follow-up conducted in formal fashion at regular intervals. In effect, it represents a quantification of performance which grew out of the original appraisal program.

More than 1,000 positions, classified by C&NW as officer-positions, are involved and a few more will be added. Targets and standards are set annually. The whole process is tied closely to budgeting.

This year, for example, North Western scheduled objectives results meetings for April, July, September and December. In April, the first tentative discussion of 1971 objectives began. Specifics surfaced in July and in more detail in September. In December, these objectives will be presented for each department in final, budget-



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related form—along with a presentation of final status reports on performance results relative to the goals and objectives set for '70.

● **Verdict: It works.** Close to 100 officers attend these four-time-a-year meetings; a smaller coordinating group, about 40 officers, meets a month in advance of each objectives/results session to lay the groundwork. What has the reaction been? Initially, there was some predictable uncertainty and confusion. But North Western officers now know the system will work. And Bob Russell and his people are confident that the end-of-1971 target for full implementation will be hit, dead center.

There are differences in semantics as to what's happened in this area. Russell says "We're tough enough to own up to our failures." He'll talk about the management-for-results program as something that followed a goals program "that evolved—haltingly—late in '68." Others are softer in their assessment—and the present system is regarded as a simple progression from what was into what is.

In any event, as AVP John Lines puts it, North Western now has gotten around the old problem in which "performance might be good or bad, but it was only vaguely defined as either. What we're doing gives us and the individual a point of departure and a point of arrival and ways of being specific about both."

In other areas, C&NW has not moved as fast as originally hoped. Computerization of personnel data, for instance, has been slowed mainly because of the need to include more information than first planned. Studies and evaluations of about a dozen other data-retrieval systems have been and are being made, and North Western now plans to get a usable system working within a year. John Lines has run into delays in preparing both a C&NW-orientation motion picture and an employee handbook. These projects remain on the 1970 program calendar, hopefully for completion by year-end or shortly after.

● **Supervisory training stressed.** Training, by North Western's definition, can cover everything from a rapid-reading course to EDP for non-computer management to tuition aid. A good part of the effort, however, is concentrated at the entry levels—for employees moving into a first supervisory job. North Western's training programs in this area are not as lengthy as those run by a number of other roads with similar programs. But they are a carefully worked-out blend of formal and on-the-job training—and the record shows that they're effective.

In the operating department, for example, programs for assistant-

Management development and training programs, 1969-70

	Participants to date	Employee coverage target for 1971
*Principles of management	650 officers	100
*Performance appraisal seminars	450 officers	350
*Management trainee program	10 college graduates	24
*Sales management seminars	50 officers	50
*Instructor development program	100 officers	65
*Development of objectives and standards	450 officers	350
*Quarterly management conferences	Top 100 officers	Top 100
*Quarterly objectives coordination committee meeting	Top 40 officers at implementing level	Top 40
*Supervisory development	80 contract-level supervisors	180
*Salesmanship confrences	150 officers	150
*Switchmen trainmen school	526	800
*Yard clerk school	52	150
*Effective telephone usage	3,000 officers and employees	1,500
*Commuter service qualification	300 employees	60
*Effective written communication	200 officers and employees	100
*Assistant trainmaster program	40 new officers from contract ranks	18
*Assistant roadmaster program (New Nov. 1970)	—	12
Operating rules application seminars (To be rep'aced in 1971)	250 officers	
*EDP for non-computer management (by Systems and Information Services Department)	100 officers	75
*Freight revenue clerk indoctrination (New Oct. 1970)	—	100
Ticket agent indoctrination	50 employees	—
Car inspection procedures	777 employees	—
Track inspection procedures (New Oct. 1970)	—	—
IDP (CarFax) clerk indoctrination	592 employees	—
Company orientation movie (under development)	—	—
Employee handbook (under development)	—	—
*Tuition assistance program	200 officers and employees	300

*Continuing programs, to be presented as needed or as programmed.

MANAGEMENT FOR RESULTS: Last month, C&NW President Larry S. Provo led the road's top officers in their third quarterly objectives/results session. In December will come the final assessment of results-in-relation-to-goals for 1970—and the presentation of objectives for 1971 for each department.

C&NW's training plans for 1971

	Employee coverage target for 1971
*Individual career development program	40
Station agent indoctrination	100
*Skills up-dating programs	150
*Operating, engineering and safety, rules seminars (replaces operating rules application seminar)	250
*Office management techniques	75
*Office equipment operation	75
*Filing systems	75
*Rapid reading	50
*Management-for-results seminars	350
*Advanced management techniques	70
*Marketing principles and techniques	100
*Conduct of an official investigation	250
*Audio-visual program library (automated sound-slide programs; video-tape/kinescope/movie programs; self-administered or for group discussion)	24 units
Preparation and use of visual aids	90
*Orientation in C&NW	1,000

*** Continuing programs, to be presented as needed or as programmed.**

trainmaster training have been given for more than two years. By the end of 1970, about 40 men will have gone through this 16-week program. Graduation means appointment as an assistant trainmaster—but the real proof of program effectiveness, Lines will point out, lies in the fact that the graduates have been making trainmaster within a year—with one man already up to assistant superintendent level.

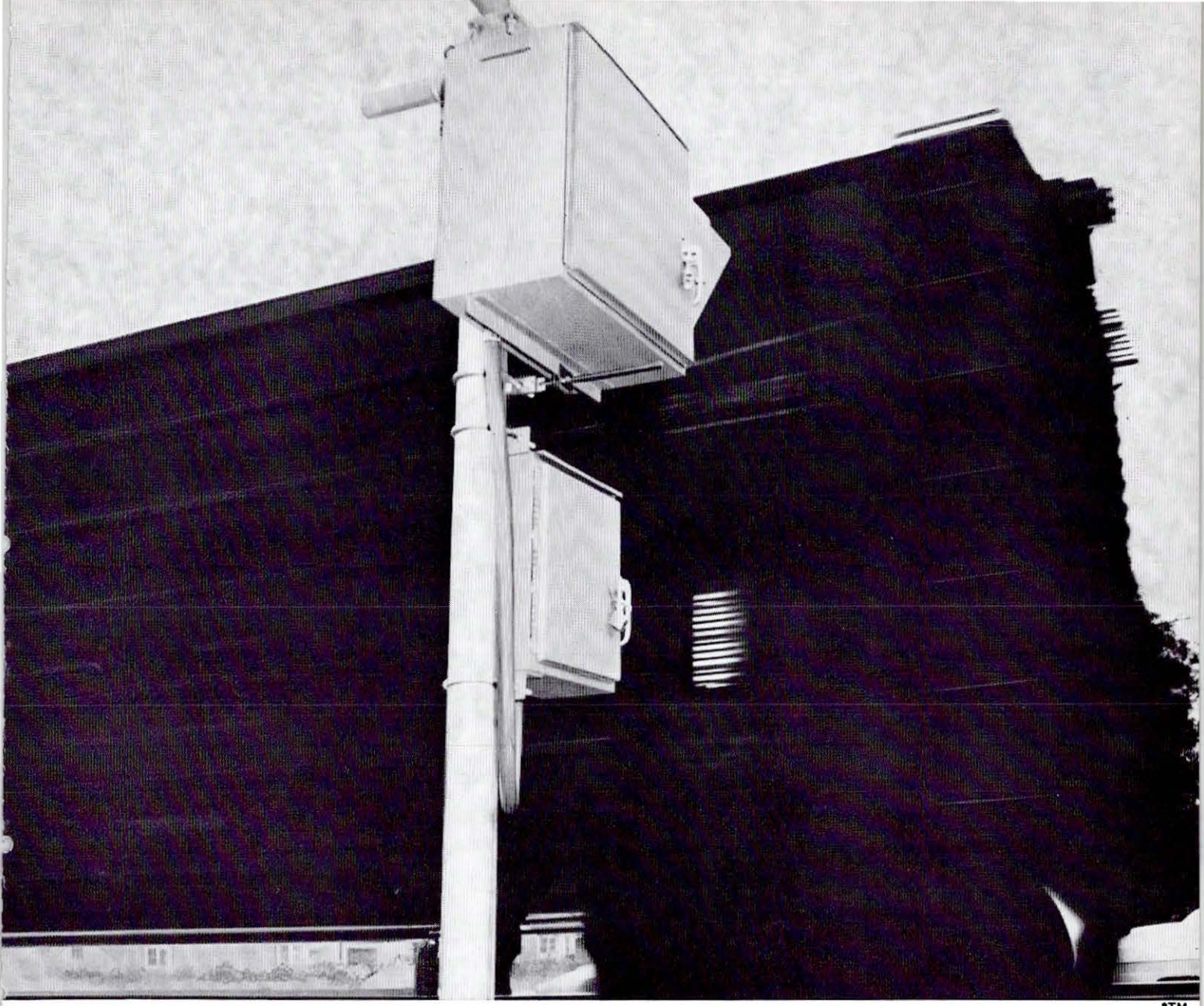
Candidates are handpicked by Zach Ford and operating department officers. They come mostly from the operating department. Many have been brakemen. Most, but not all, are young. And they have, in each instance, two characteristics in common: Tests show they're capable—and appraisals of performance in their present job indicate they're highly qualified

Trainees start out by spending a week with a trainmaster. Over the remaining 15 weeks of the program, they'll go through North Western's three-day principles-of-management course. They'll spend time with labor relations learning discipline procedures, and with accounting learning budgeting procedures. They'll get a taste of life in the systems area, with emphasis on how operating management can make use of North Western's computer center. They'll be introduced to other areas within the operating department—motive power, the car department, engineering. They'll go through C&NW's switchman/brakeman school at Proviso Yard. And they'll spend the final six weeks of the program out on the property, working with an experienced trainmaster.

● **Roadmasters, too.** The next assistant-trainmaster class begins in November—and, simultaneously, a similar program leading to appointment as assistant roadmaster will be started, with six or seven employees making up the initial group.

Even before that, however, two other new programs are coming on line An indoctrination program for freight-revenue clerks and a course in track-inspection procedures are scheduled for implementation in October.

One of the problems in trying to train so many people in so many things is instructor availability—but North Western, thus far, has managed to get the instructors it needs. Eight officers are now involved full-time in training, including a recently-added manager-sales training whose appointment to the staff ended a year-long search. And Lines has a continuing program for training line supervisors as instructors: "This kind of training," he says, "never stops." Neither, apparently, does North Western's search for (1) the men and women to run tomorrow's C&NW, and (2) ways to help them run it better. ■



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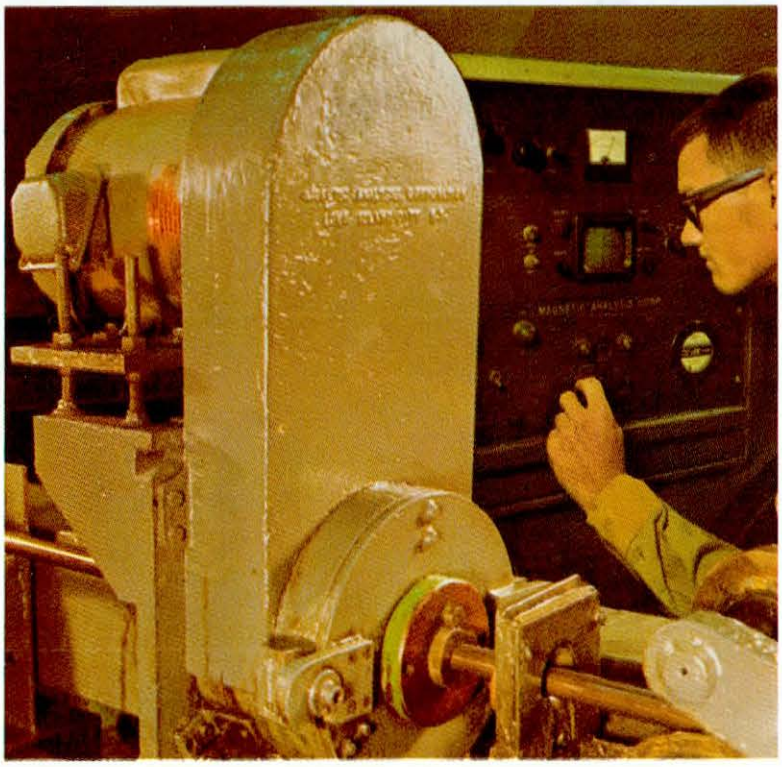

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Where Santa Fe gets its team

The road's recruiting is concentrating on three areas: Operations, traffic and purchasing and materials.

Management development on Santa Fe is coast-to-coast and top-to-bottom —ranging geographically from Harvard and MIT to Stanford and USC, and ranging internally from the highest levels of management to the trainees and the men coming from the ranks into their first supervisory positions.

At this point, Santa Fe personnel officers are aiming to step up training and development programs—at least in part because retirement projections over the next five or six years point to a growing need for promotable people.

● **Within—and without.** Traditionally, Santa Fe has drawn heavily from within, and this certainly will continue. At the same time, personnel managers know that they have to supply a steady stream of new hires with management potential—and not just from the college and university campuses.

Over the past several years, the road has been hitting 30 to 35 campuses for in-person recruiting, and trying to reach an equal number with job descriptions and the aptly-titled recruiting brochure "Make Tomorrow Happen." Men like W. J. Swartz, assistant vice president-personnel, are cautious in appraising results of their talent search—but Santa Fe has been attracting its share of today's graduates, and the climate may be getting even better for railroad recruiting.

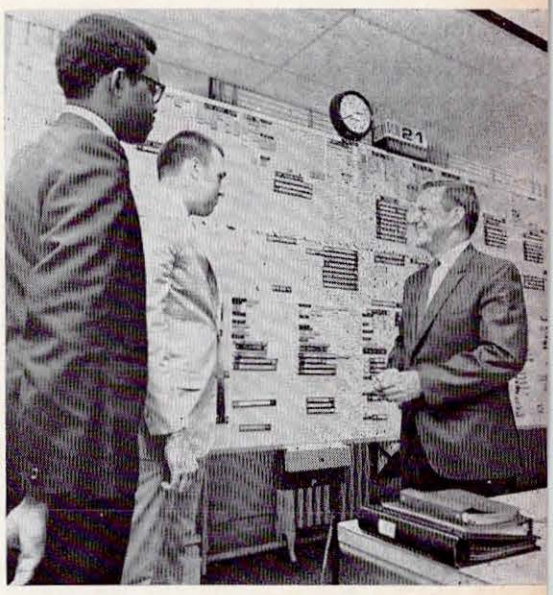
The man responsible for the college-relations program, Manager-Personnel Development Gary K. Chesney, will point out that there is a growing interest on campus in transportation, and particularly in railroad transportation. Part of this could be laid to recruiting cutbacks in defense industry and in so-called "glamor" industry. But whatever the reason, those transportation companies that make the effort should reap the benefits. And, Chesney will add, with the exception of certain railroads, the transportation industry doesn't really do a very good job of going after the graduates.

● **Not just the colleges.** College and university recruiting, however, is only a part of Santa Fe's total program, actual or proposed, for keeping the new blood flowing. A second booklet, similar to "Make Tomorrow Happen," is under consideration for use in attracting people from the junior colleges, high schools and technical schools. Study is also being given to setting up cooperative work-study programs in major metropolitan centers, which might prove especially attractive to technically-oriented employees.

Once an individual is recruited or selected from within for management training, he can count on getting a broad education in railroading—but not one that is so highly structured as to be rigid in application.

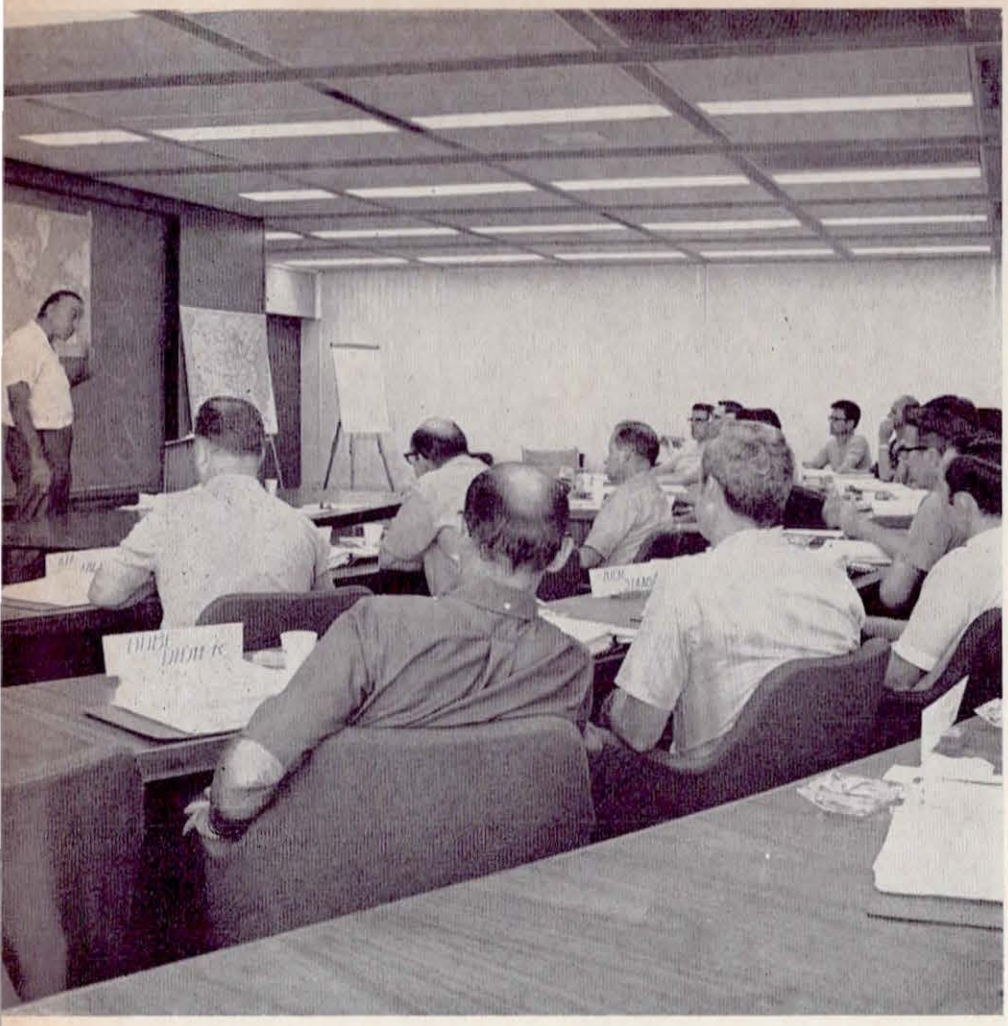
Santa Fe's current concentration is in three areas—operations (including transportation, mechanical, engineering, signal and communications), traffic and purchasing and materials. In line operations, for example, the aim is to put eight new trainees through the program each year. Ideally, a class will be made up of four present employees and four campus recruits. Ideally, the group will be split—one present employee, one new man at each location —among the road's three grand divisions and operating-department headquarters in Chicago. Training runs for a year. Graduates are appointed transportation inspector or safety supervisor as their entry job in supervision.

● **Flexibility built in.** Personnel officers emphasize a couple of points in their approach to this kind of management training. First, they put down the formal kind of program which can produce what John Swartz calls the "crown



FROM CAMPUS TO RAILROAD

A few months ago, they stepped up to receive their diplomas—and now they're learning railroading, in a variety of assignments with Santa Fe. Above left: Signal Assistant L. H. Garcia, shown checking a diagram with General Superintendent-Signals and Communications L. R. Thomas, is a 1970 graduate of the University of Houston. Above: Over in the operating area, two operations analysts —Paul Nash and George Sefcik—check out Santa Fe's locomotive control center with T. D. Mason, special assistant to the vice president-operations research. Nash was graduated from Purdue this year; Sefcik got his degree from the University of New Mexico last year, and also has eight years' Santa Fe experience as switchman, brakeman and engine foreman. Left: Martha Luken, a 1970 graduate of St. Mary's College, does her research in the traffic area, as a market research assistant.



LEARNING THE PRINCIPLES OF MANAGEMENT

Santa Fe's annual Institute of Business Economics at the University of Southern California may represent the longest-running comprehensive executive-training program in the nation. Thirty-five middle-management personnel were members of the 19th class this year—getting a broad management education from a panel of USC instructors (above), and also learning more about the Santa Fe in a spirited question-and-answer session with top officers of the railroad (below).

prince" syndrome. Second, they tend to encourage movement across departmental lines—though most of the transportation trainees will, in fact, make at least their initial career moves upward in the operating department. Third, Santa Fe is not about to stub its toe (as some roads have) by recruiting and training on a wholesale basis—and then having no supervisory assignments for the eager graduates to fill.

On a less formalized but no less value-filled basis, ATSF has also been running management-training seminars —short-courses for employees coming into their first management positions. The program includes planning, control, motivation, communications, cost accounting and budgeting, personnel and labor relations work, a touch of industrial engineering and what might be termed the "moral, legal and ethical responsibilities of management."

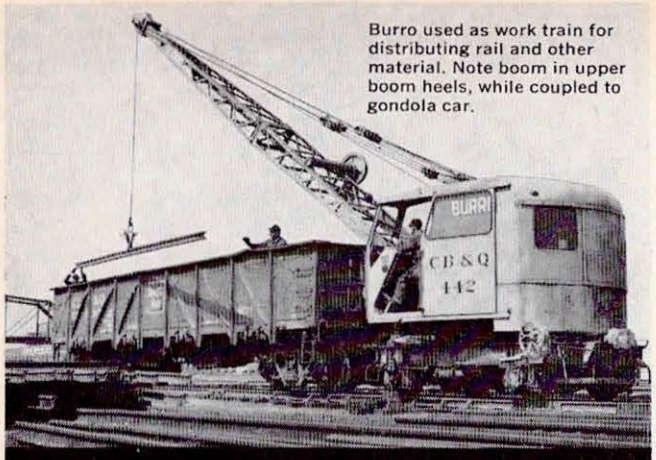
● **Training on the outside.** Several broad programs go beyond the in-house training. A tuition-support program allows all employees to take courses which will prepare them for advancement. In the middle-management area, Santa Fe makes good use of various seminars, as well as transportation management programs at such schools as Northwestern and American University. The 19th annual Institute of Business Economics class was graduated this past July from the University of Southern California—putting Santa Fe well over the 500 mark in the number of managers who have gone through the six-week program in management-related disciplines since the program was begun almost two decades ago. And the road has been averaging one middle-management officer every other year in the Sloan Fellowship program at MIT.

Santa Fe is also looking enthusiastically at an executive program at the University of Chicago—a 20-month program (leading to an MBA degree) which alternates Friday and Saturday sessions and thus does not require that a manager leave his job to further his education.

At the top of the stack of programs are those at Harvard and Stanford—now marked for participation by senior line and staff officers.

● **Appraisal program under way.** Recruiting and training are a vital part of the management-development job—but at least as important, as Vice President-Personnel O. H. Osborn and his staff well know, is the basic job of knowing who is where, doing what, for how long, and how well. With the help of the computer, Santa Fe can now draw off comprehensive factual data on its employee force. Coming up—and subject to refinement over the next several years—is an appraisal program, similar to the one instituted by Chicago & North Western (see p. 32) and other roads. Appraisals—across-the-desk discussions of strong and weak points, supervisor rankings and recommendations—were conducted last year for managerial people in the operating department. This year, the program is company-wide. Next year and the year after—and over the next five and 10 years—the real value of the program will show up.

As John Swartz puts it, "there's danger in relying on appraisals until we can build a history over a period of years. But once that history is available and the program has gone through an aging process, we should have a reasonably accurate profile." It won't be the precise kind of thing that a track profile is—but, hopefully, it can help to outline the shape and the makeup of tomorrow's management. ■



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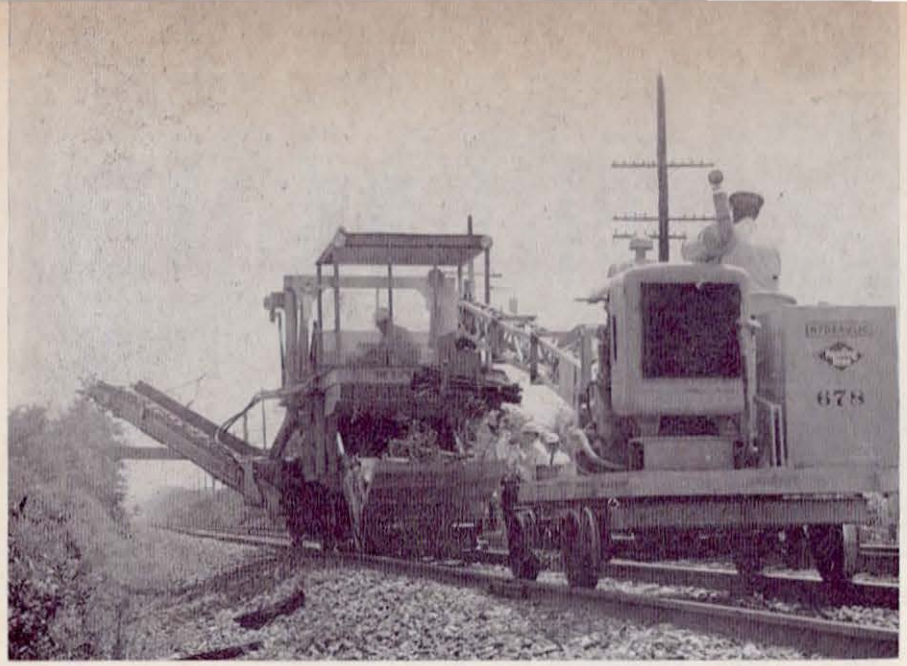

TIE EXTERMINATOR (in background), gets tie chunks from Tie Handler, reduces them to chips which are then discharged along the right-of-way by belt conveyors.

This machine destroys old wooden crossties

The railroad crosstie these days presents a twofold problem. One aspect, on the average railroad, is finding sufficient funds to purchase and install the new ties needed. The second aspect is disposing of the old ties after they have reached the end of their service life and have been removed from track.

The second aspect of the problem is leading to the development of new and unusual means of disposing of old ties—such as this method used on the Reading:

In operation, the first production model of a newly-developed track-mounted machine called the Tie Exterminator is fed chunks of crossties by a Tie Handler which picks them up from the right-of-way. From the end of a discharge conveyor at the other end of the machine, the tie chunks are ejected onto the right-of-way in the form of chips and small particles The designed rate of production: 450 tie pieces, equal to 150 complete crossties, per hour.

L. D. Freeman, Reading's chief maintenance of way officer, explains that an urgent need for such a machine had developed on his road. Its tie-renewal gangs are mostly equipped with machines that cut the ties into three pieces before removal. This practice is preferred because it results in minimum disturbance of the track. It creates, however, the problem of disposing of the tie stubs. There is no demand for the stubs on the part of farmers or others. Burning of ties is prohibited in New Jersey, and in Pennsylvania and Delaware, the other states served by Reading, air-pollution-control laws severely restrict the practice.

● **Two alternatives.** The road was thus left with two alternatives. It could allow the tie stubs to remain on the right-of-way, or it could load them into cars for later unloading at a land-fill dump, which would have to be done under closely supervised sanitary conditions.

Neither alternative is a satisfactory solution, says Freeman. "The only real answer," he says, "was development of a machine designed to reduce the ties to chips for scattering along the right-of-way."

The need for such a machine was also seen by the Railway Products Co., a division of the Marmon Group, Inc. The result was development of the Tie Exterminator. The tie-destroying mechanism of the machine has three main parts—a rotating drum 4 feet in diameter and about 4½ feet long, a pressure-loaded anvil and a pressure-loaded feed tray.

● **How it works.** The outside periphery of the drum is studded with rows of expendable and replaceable carbide-tipped cutter bits Meshing with these teeth is a series of similar cutter bits mounted on the anvil. Tie chunks on the feeder tray are continuously urged against the rotating drum which cuts away the exposed surface of the ties. Forces resulting from this cutting action urge the ties in a sliding movement along the feed tray against the anvil. Here the shredding action is completed by cutter bits on that device.

For disposing of tie chips along the right-of-way, there are two discharge belt conveyors, one on each side of the machine. These reach 21 feet from the track and may be adjusted to any angle desired. Each discharge conveyor is fitted at its outer end with spreader devices, called "flingers," which disperse the tie chips.

Tie chunks are delivered to the feeder tray by a feeder conveyor between the rails at the front end of the machine. Directly above the feeder tray is the control deck, manned by a single operator. From this position, he can observe all operations and movements of tie chunks as they move over the feeder tray and into the machine

● **Three-man crew.** In one recent operation on Reading, the feeder conveyor of the Tie Exterminator was fed by an RTW Tie Handler. Personnel for the entire operation consisted of an operator for the Tie Handler, an operator for the Tie Exterminator, and a foreman. In this case the machine had the use of the track. On that day, during something less than four hours' work time, the machine "exterminated" more than 500 crossties. This was the first day the machine was in operation after having undergone some adjustments in the shop.

During the working season, Reading usually has three or four tie-renewal gangs in operation. This year, one of these was equipped with a Fairmont Tie Remover which removes ties in a single piece. The other gangs have Kershaw Dual Tie Saws. "I feel we will need one more Tie Exterminator to work with one of the gangs that cuts the ties in three pieces," says Freeman Any ties not reduced to chips during the working season can be "exterminated" in the off-season, he adds.

● **What about fire hazard.** Will the wood chips have the effect of increasing the fire hazard on the right-of-way? Freeman is convinced they won't. "The tie pieces are scattered thinly enough," he says, "so the fire hazard won't be increased beyond that which already exists."

On the other hand, Freeman sees a fringe benefit from use of the Tie Exterminator. "The tie chips," he says, "exercise some degree of weed control. Our experience is that weeds are not growing where tie chips have fallen from previous experiments." His explanation is that the wood preservatives in the ties, leaching out of the wood, have a toxic effect on vegetation. ■

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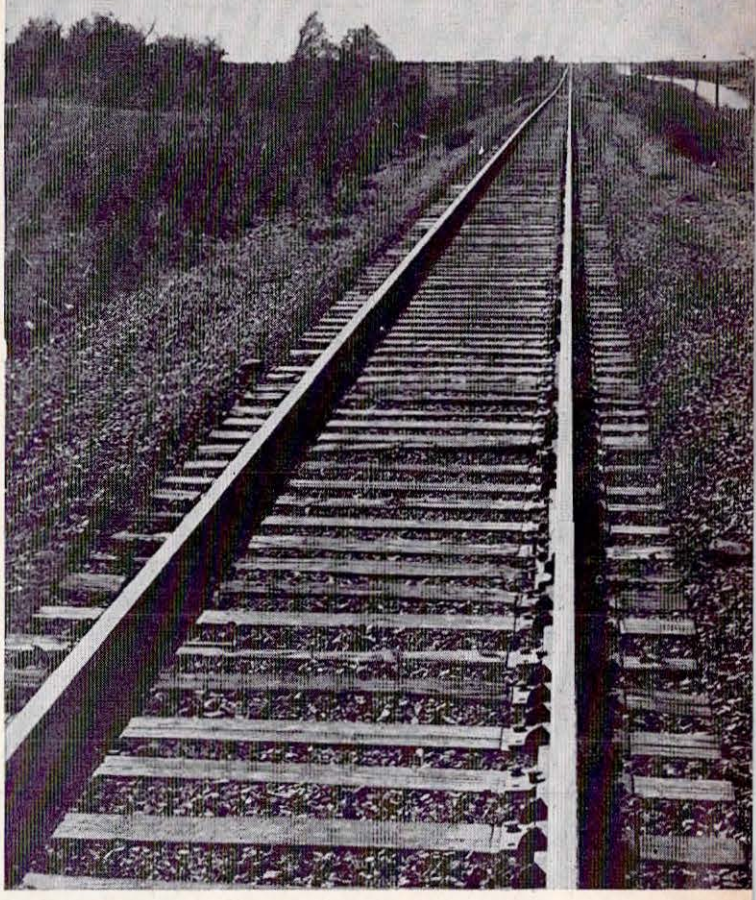

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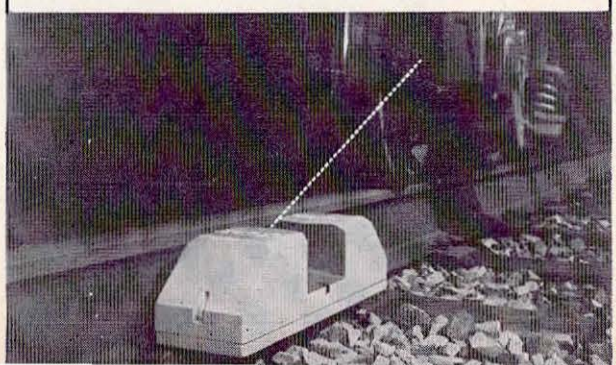

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Hicksville, N.Y. 11802 • Tel. 516-938-9700
European Office: Lausanne, Switzerland

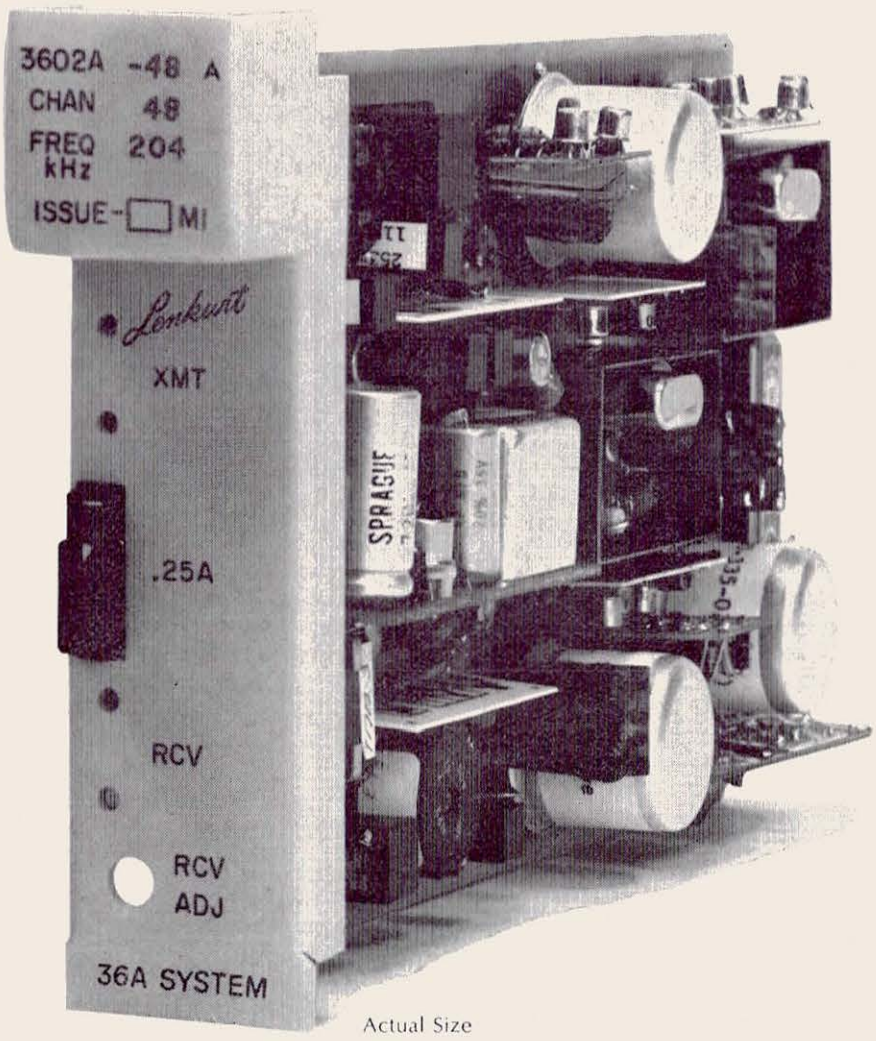
Serving Safety Through Science

Since 1957, more than 1,000 SERVOSAFE Hot Box Detective systems have been put into service on 54 of the world's major railroads, and have compiled an unequaled record of safety improvement and cost reduction.

MEMBER RPI

Circle 32 on coupon page 63

Lenkurt reduces the size of 2 GHz
" " " price " " "



Actual Size

radio and low density multiplex.

Our new systems are by far the most compact, most economical you can buy.

The 36A, 48-channel multiplex is one-third the size of any comparable domestic unit. One duplex channel, complete with signaling, fits on a single card. And since each card is a self-contained, one channel system there is no need for expensive common equipment.

We get a duplex channel on a single card by using our 1-cubic inch, polylithic crystal filters. In addition, these filters make it practical to use the latest integrated circuitry to reduce size, price and maintenance problems. We've applied for patents on the manufacturing process of these filters, so nobody else is likely to have them for quite awhile.

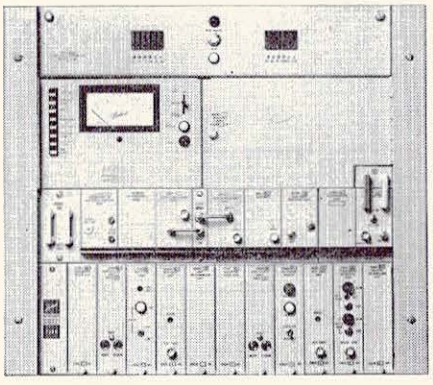
The 78F2 600-channel 2GHz radio is the smallest on the market, yet simple to service. The all solid-state transmitter and receiver are combined on a single shelf. And built-in test facilities will keep costs down by reducing all routine maintenance to a 5-minute job.

Compare the specs and prices on our systems with everybody else's, then give us a call: Atlanta (404) 261-8282 — Chicago (312) 263-1321 — Dallas (214) 363-0286 — Falls Church (703) 533-3344 — San Carlos (415) 591-8461.

Or write: Lenkurt Electric Co., Inc., Dept. C720, 1105 County Road, San Carlos, California 94070, for complete literature.

Lenkurt 36A 48-channel Radio Multiplex single channel stackable — 12 channels (three mounting spaces high) on a 19" rack — channels are identical except for small plug-in channel selection oscillators, so one channel (less oscillator) is all the "spare parts" you need — operates directly from 24 or 48 volts with 17-18 dBrncO noise — built-in E&M signaling.

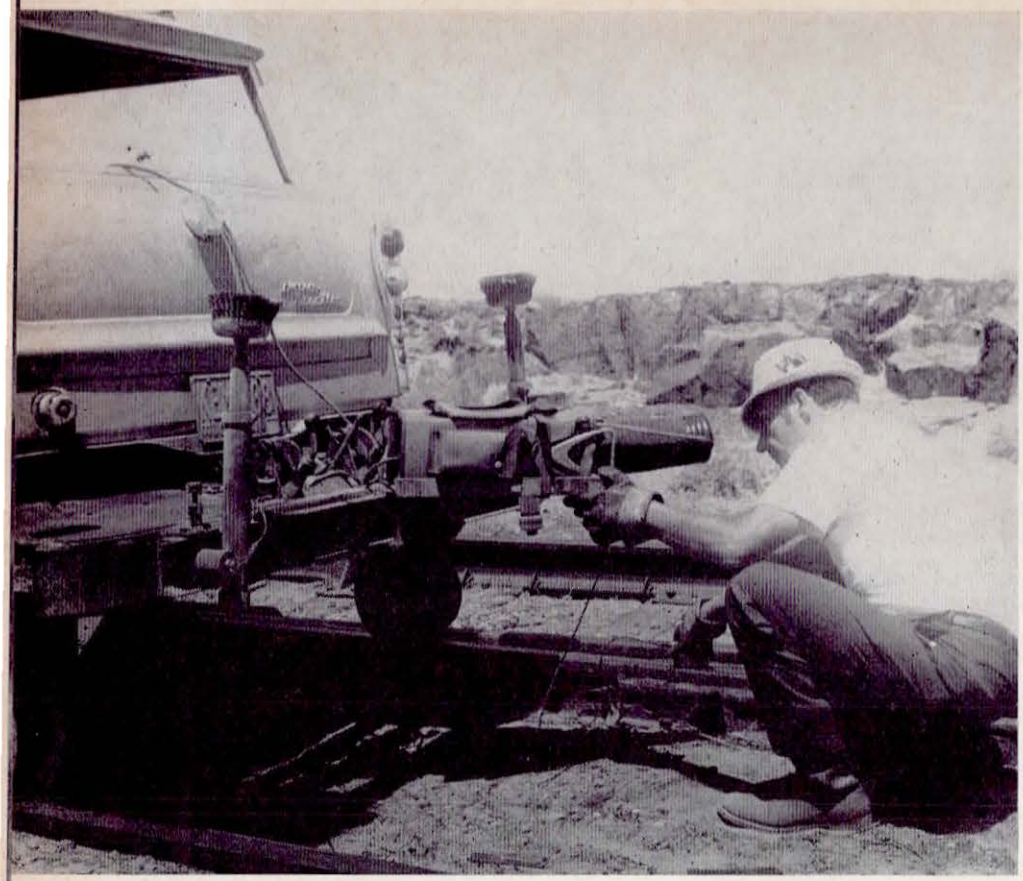
Lenkurt 78F2 600-channel 2 GHz Microwave Radio 5 watt power output — operates directly from 24 or 48 volts — 8 dB receiver noise figure — 18 dBrncO/hop noise performance — a duplex system with baseband and power distribution equipment takes up only 10 mounting spaces on a 19" rack — push-button monitoring of power output, deviation, transmitter frequency and receive signal level — built-in alarms monitor power output, off frequency, receive signal level, transmit pilot and operation of hot standby switch.



78F2 Microwave System

LENKURT ELECTRIC
GENERAL TELEPHONE & ELECTRONICS

Circle 15 on coupon page 63



REFLECTOSCOPE, mounted on rear of Hy-Rail vehic e, indicates internal rail defects by showing characteristic fluctuations in a line moving across a screen.

How UP minimizes its rail failures

What can a railroad do to minimize rail failures in joint-bar areas at turnouts? Any road asking itself this question might find it worthwhile to consider what Union Pacific is doing in this area.

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In addition, joint areas in all mainline railroad crossings and at hotbox detectors are ultrasonically tested every 60 days. Turnouts in less important branch lines are tested at least every six months.

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● **Three testing crews.** The present practice of testing main turnout connections ultrasonically began some years ago. Then the road put into service a unit consisting of a two-man crew equipped with a Hy-Rail vehicle and a Sperry Reflectoscope for doing the testing. Two more such units were put into service later. At that time the 60-day testing schedule was established. All vehicles used by the testing crews are automobiles with Fairmont Hy-Rail attachments.

UP engineering officers are convinced that the present practice is paying off. "With this practice we are getting a better job of inspection than when we were doing it visually," says Byrne "We haven't had a derailment at a turnout due to a joint-area failure since we put the ultrasonic testing on the 60-day schedule."

Testing crews, each consisting of an operator and an assistant operator, work out of the chief engineer's office at Omaha. Each crew has an assigned territory and is headquartered at a point central to that territory.

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● **Also test running track.** In addition to having a Reflectoscope, each inspection crew is equipped with one or two Sonirail inspection units. These are hand-held ultrasonic inspection devices. They are partly for standby use but they also serve another purpose. Byrne explains it this way: "Occasionally it happens that a regular Sperry detector car will find what is considered to be an excessive number of defects in joint-bar areas in a particular territory. In that case we will assign one of the ultrasonic crews to go over the territory between runs with the Sperry cars to test the joint-bar areas with the Sonirail testing units. This reduces the possibility of a joint-area failure occurring under traffic."

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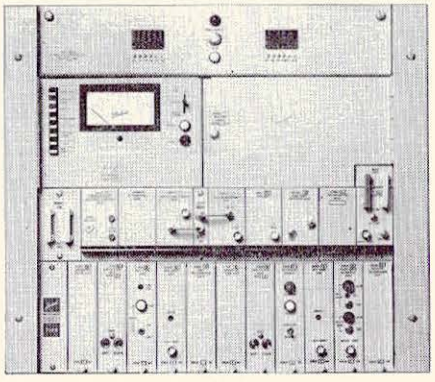


78F2 Microwave System

LENKURT ELECTRIC
GENERAL TELEPHONE & ELECTRONICS

Circle 15 on coupon page 63

"We've had good experience with Shell Tornus® Oil in our turbocharged units. And they probably work harder than any in the country."

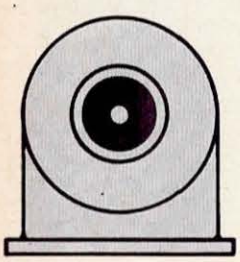
P. D. Starr, Chief Mechanical Officer, Denver & Rio Grande Western

SHELL

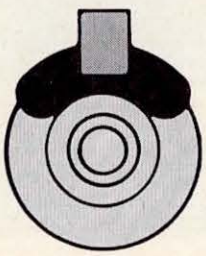
MEMBER RPI

Circle 16 on coupon page 63

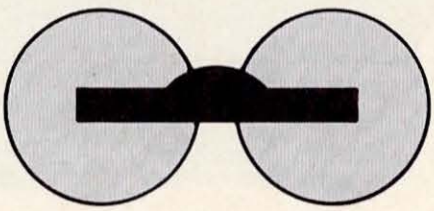
What makes BART run?



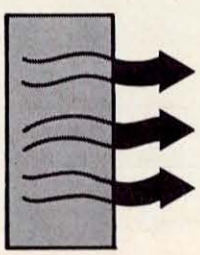
Propulsion



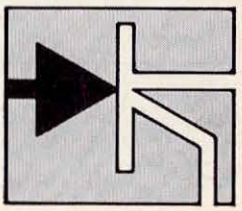
Brakes



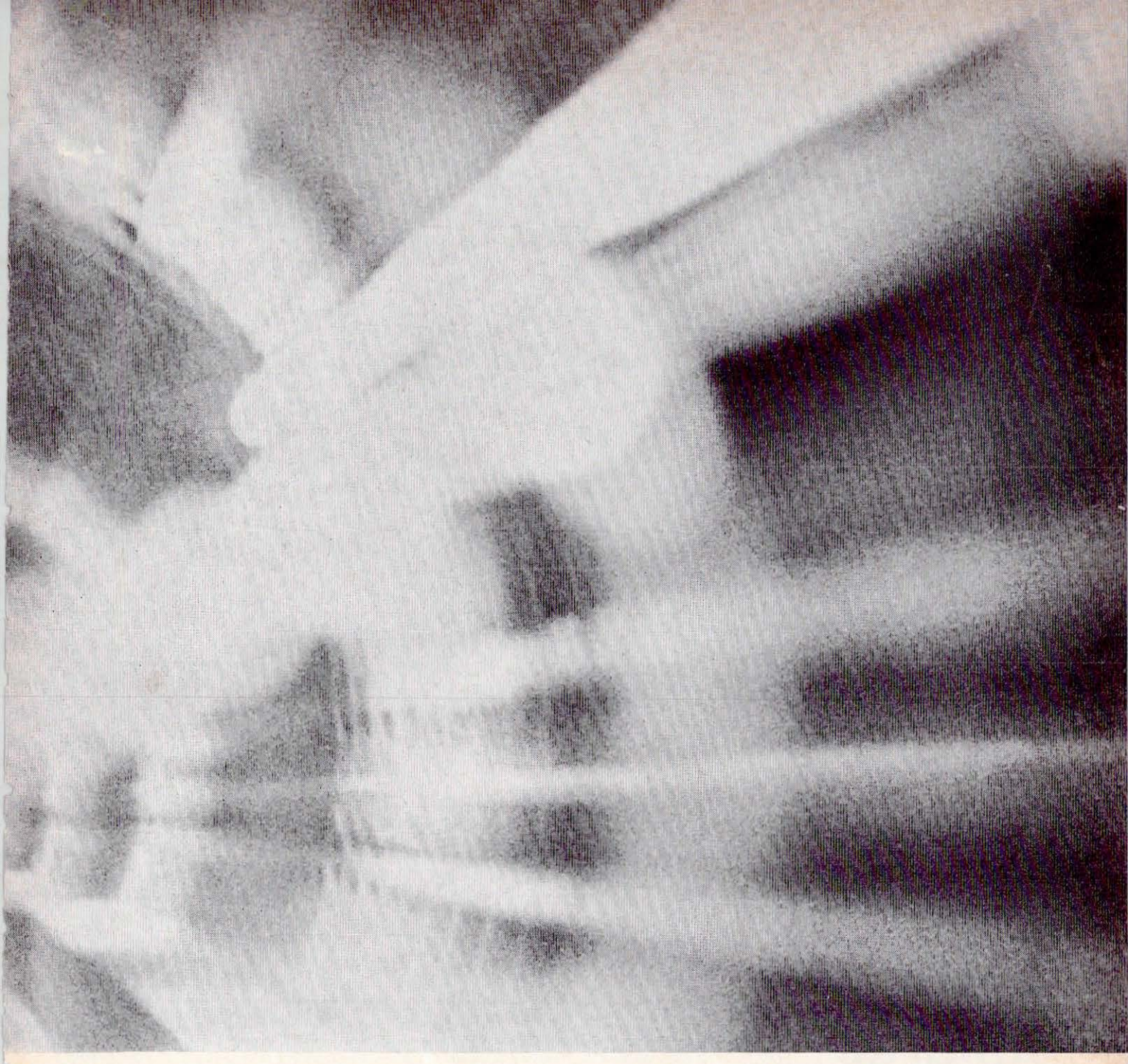
Trucks



Air conditioning



Auxiliaries



Five systems from Westinghouse.

Hands-off operations. Speeds up to 80 mph. 90-second headways. 30,000 seated passengers per hour in one direction. Constant computer operation throughout the system. BART's coming.

Westinghouse is providing Rohr Corporation (prime contractor for the BART car) with the propulsion systems, brakes, trucks with wheels and axles, air conditioning, and auxiliary electrical systems.

The trucks for BART's lightweight cars will have smooth air-spring suspension and steel-aluminum wheels.

BART will have the first fully automated, production, hydraulic disc brake system that electronically blends dynamic and friction braking. It will provide anti-slip-spin and load-weigh compensation. It will weigh about half as much as ordinary systems.

Everything's sophisticated. Each car will have onboard annunciation of subsystem performance and Westinghouse will provide an automatic shop tester for dynamic testing, calibration, and fault isolation.

Questions? Write Westinghouse Electric Corporation, Transportation Division, Avenue A and West Street, East Pittsburgh, Pennsylvania 15112. J-5-70

Circle 17 on coupon page 63

You can be sure...if it's Westinghouse

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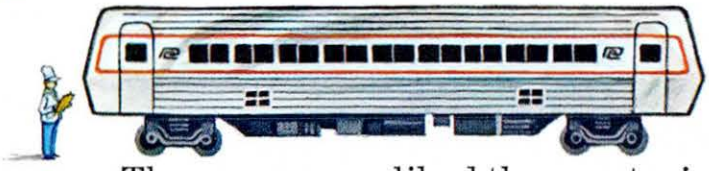
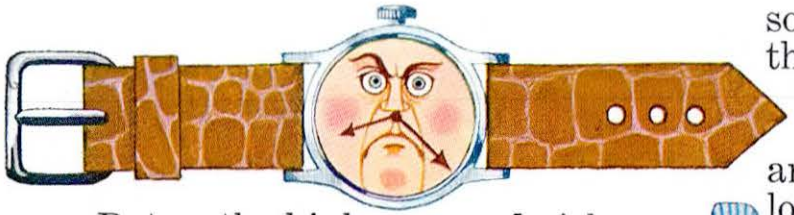
The little Metroliner that could.

Once upon a time there were two cities called New York and Washington. The people in these cities loved to visit each other, and their cousins in Philadelphia and Baltimore, too.

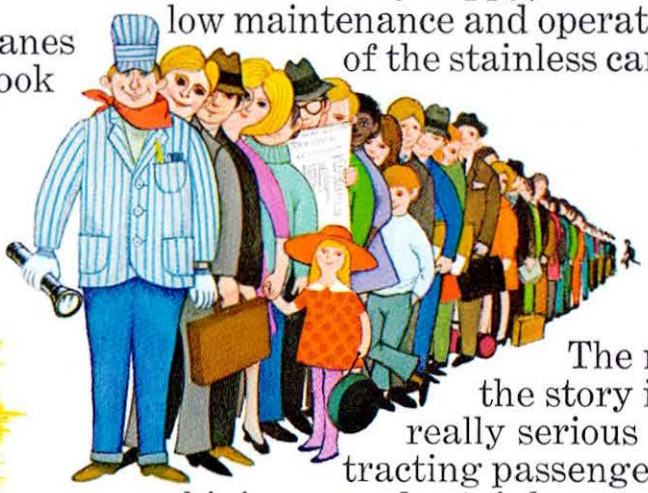
So they got to work, and the Budd Company built a set of shiny new trains called Metroliners. Naturally, they used nickel stainless steel so the cars would be beautiful, corrosion-resistant, strong, and lightweight.



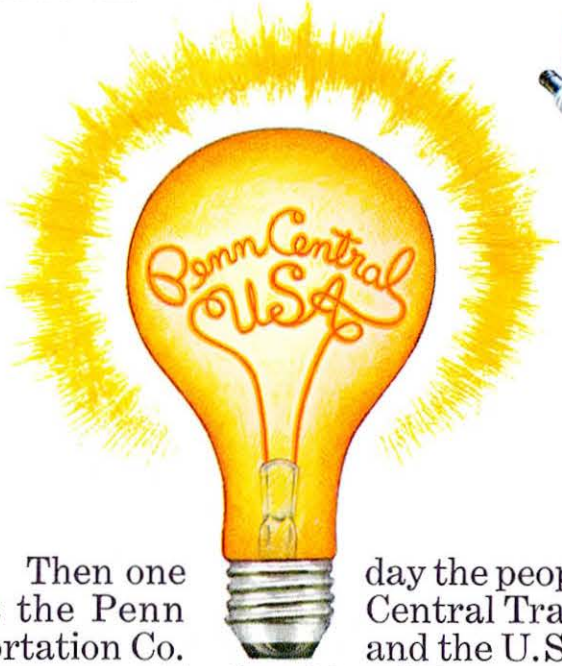
The passengers liked the new trains so much that they often bought up all the reserved seats, days in advance. The trainmen were very proud to work on Metroliners. And the railroad accountants were very happy, because of the low maintenance and operating costs of the stainless cars.



But as the highways and airlanes got more and more crowded, it took more and more time to get back and forth.



The moral of the story is, if you're really serious about attracting passengers, use a shining, speedy stainless steel train. And then you can add your chapter to the story of trains that could.

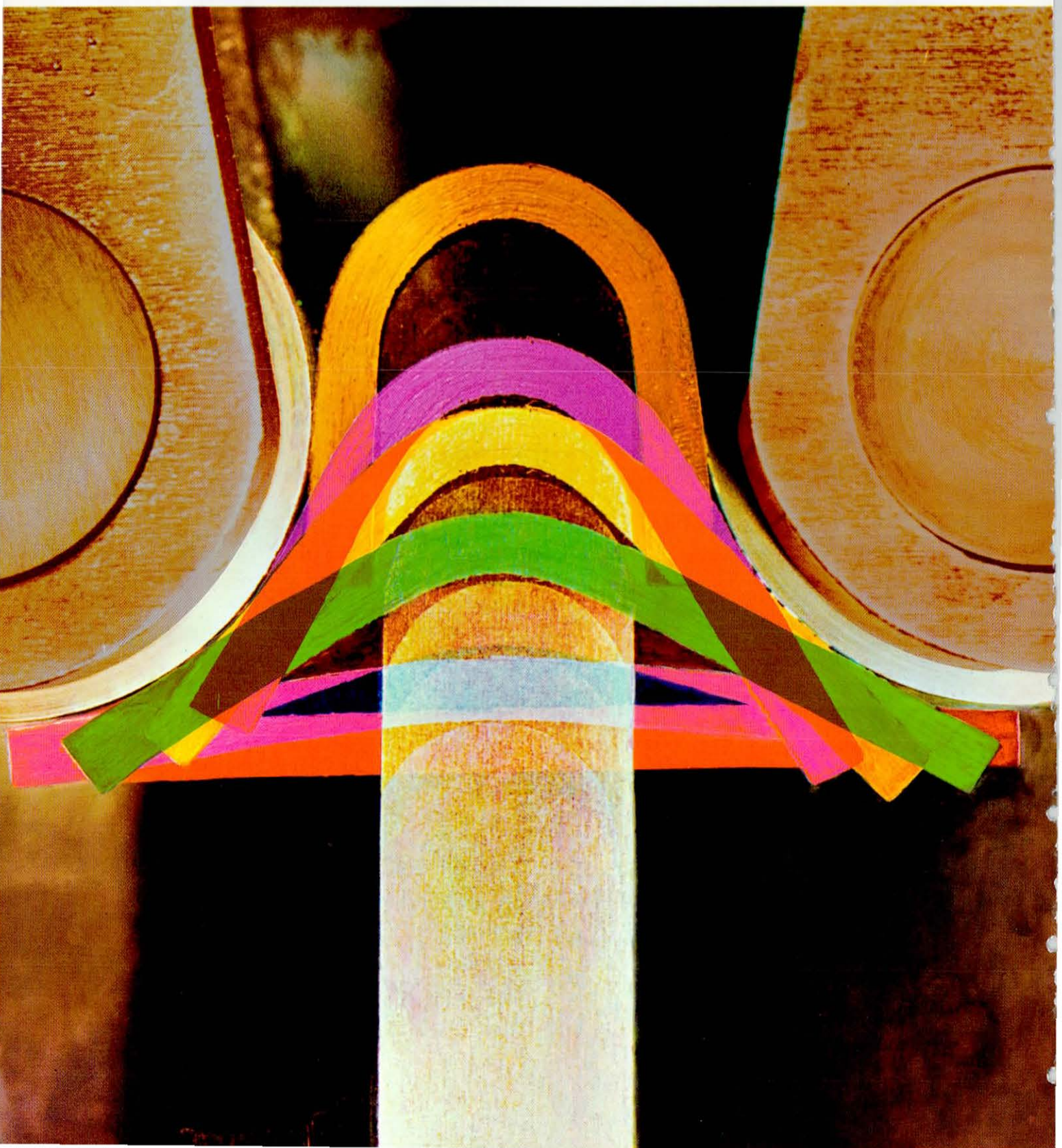


Then one day the people at the Penn Central Transportation Co. and the U.S. government had an idea. Why not improve the roadbed and run high-speed passenger trains between the cities?

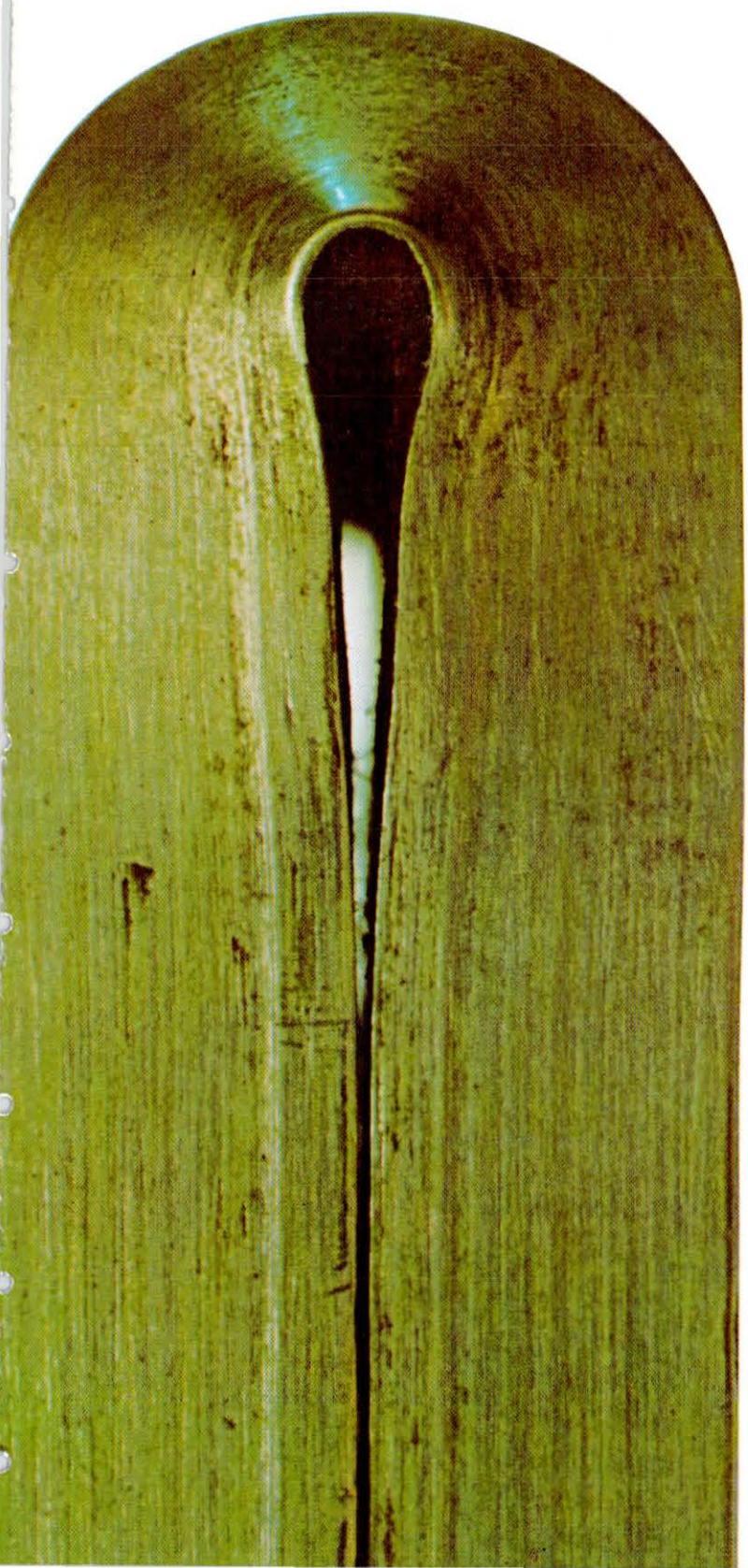
For more information on nickel stainless steel for railway and transit cars, write to The International Nickel Company, Inc., 67 Wall Street, New York, N.Y. 10005. In Canada, The International Nickel Company, Limited, P.O. Box 44, Toronto-Dominion Centre, Toronto 111, Ontario. INTERNATIONAL NICKEL

A new high strength steel . . .

New YS-



T80



A titanium high strength steel that bends over backward to solve your forming problems!

Try forming a ½ t inside bend radius with most other high strength steels and you literally break their back—at about 2 t. But Youngstown's new YS-T 80 steel can be substantially flattened on itself without fracturing.* You can form it to virtually any inside bend radius—at 80,000 psi minimum yield strength.

There's more to the story. YS-T steel also has a much lower degree of directionality than other high strength steels, resulting in far more uniform forming characteristics.

New YS-T steel is available in yield strengths from 50,000 psi minimum to 80,000 psi minimum. And, if you need corrosion resistance, we can supply a corrosion resistant titanium steel with the same great formability.

YS-T steel—Youngstown's new titanium-strengthened problem-solver. If you need light-weight strength and excellent formability, send for this brochure:

FREE
Complete information, including chemical and mechanical properties, on YS-T steel.

Just circle the reader service number, or write:

Youngstown Sheet and Tube Company,
Dept. T., Youngstown, Ohio 44501.

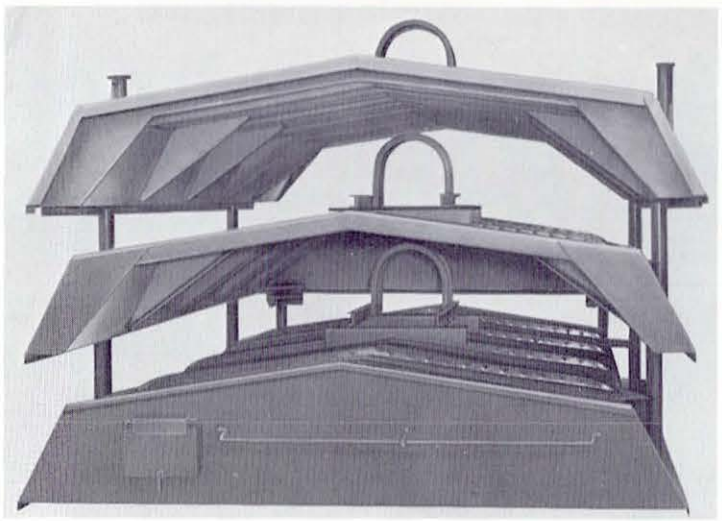
Youngstown Steel

*ASTM E290 bend test procedures

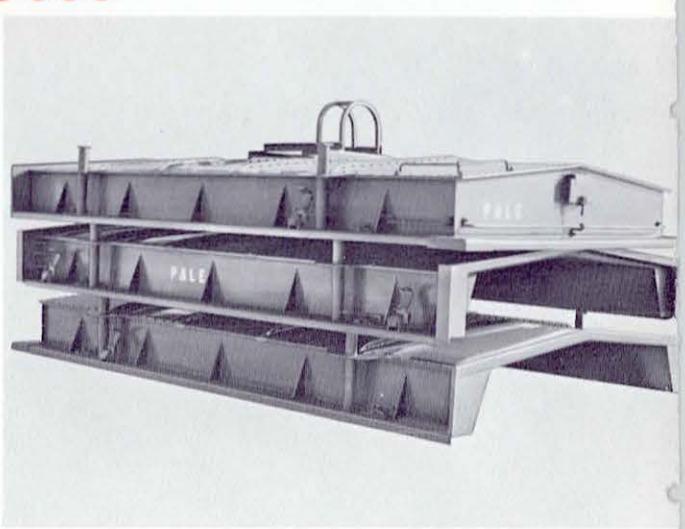
YS-T is Youngstown's trademark for a high strength steel.

What's Stanray done for railroads lately?

Removable roofs...

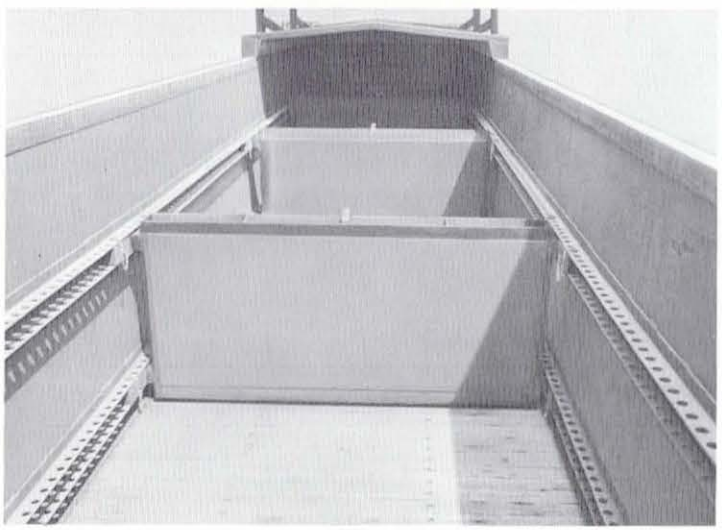


Tri-section roof provides up to 9 feet of loading space. Is available with top inspection hatch and running board, or with end-mounted hatch and no running board.



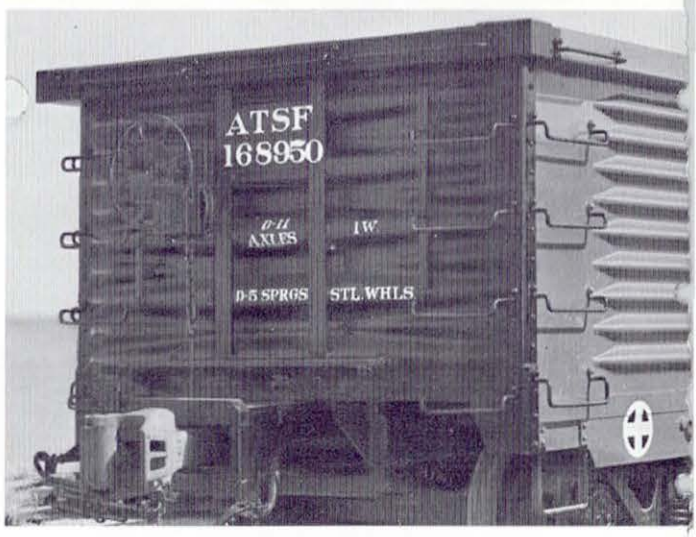
Low-profile 3-section removable roof is reinforced for extra strength. Has stacking stanchions and end-mounted inspection hatch.

Bulkheads...

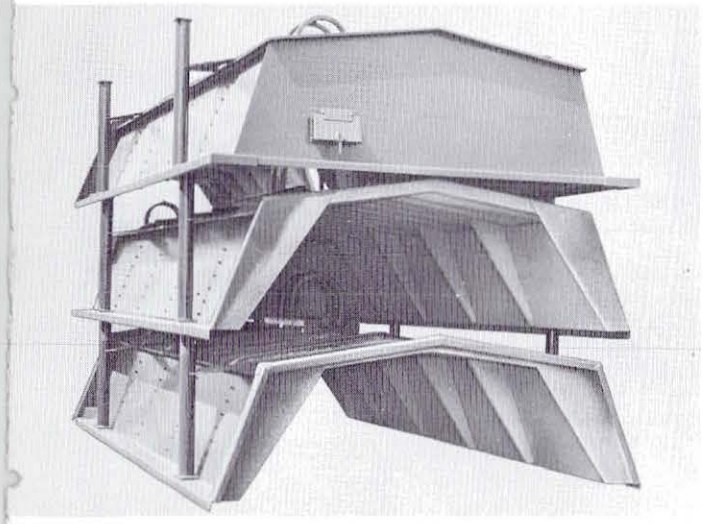


High strength bulkheads using 9 inch channel framework and 3/16 or 1/4 inch steel facing sheets. Can be used with or without wood facing—Furnished with manual or automatic locking devices and special belt rails.

Ends and sides

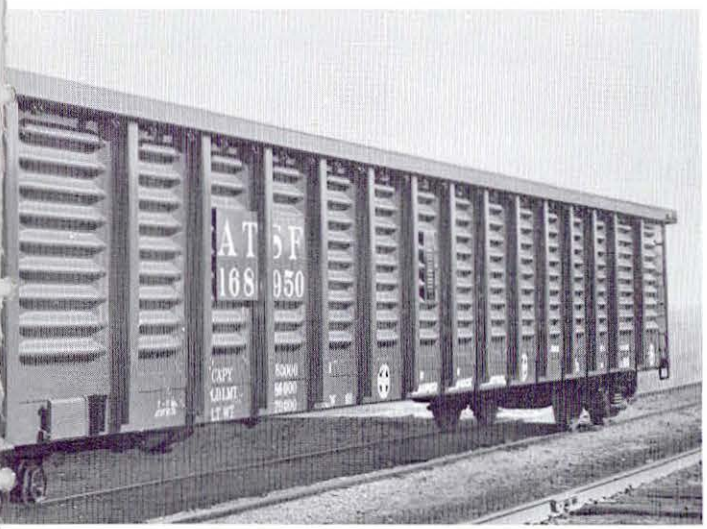


The corrugations of Standard Dreadnaught Ends and Sides provide the greatest resistance to shock and impact—add strength where it's needed most.



This 3-section removable roof provides a gondola with 75 percent of the capacity of a boxcar. Is specially reinforced, stacks easily, and comes with top or end-mounted inspection hatches.

Twin-section coil cover can be easily stacked for loading or unloading. Has end-mounted inspection hatch.



STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
Chicago, Illinois • Hammond, Indiana

G. B. Mott, industrial engineer, Fort Worth, Tex., becomes senior industrial engineer, Minneapolis.

David F. Ylkanen named director, organization and manpower planning; **M. M. Smiland,** director, employee services; **James B. Dagnon,** manager, personnel research and statistics, all with headquarters in St. Paul.

R. W. Masden appointed material manager, West Burlington, Iowa; **S. Tropino,** Lincoln, Neb.; **W. H. Schlieper,** Laurel, Mont.; **R. G. Schultz,** King Street material store, Seattle. Mr. Masden replaces **A. M. Fitch,** retired, and Mr. Schultz succeeds **G. A. Wobser,** also retired.

PENN CENTRAL.—Has reduced the number of vice presidents from 35 to 11. The eleven, who will report directly to the president, are: **Robert G. Flannery,** vice president-operation; **Edward G. Kreyling, Jr.,** vice president-sales and marketing; **Jonathan O'Herron,** vice president-finance; **James A. McDonald,** vice president-staff; **Samuel H. Hellenbrand,** vice president-real estate and taxes; **Basil Cole,** vice president-legal administration; **Paul Funkhouser,** vice president-public affairs; **Malcolm P. Richards,** vice president-purchases and materials; **J. J. Maher,** vice president-labor relations; **F. L. Kattau,** vice president-personnel, and **William A. Lashley,** vice president-public relations. Also reporting to the president will be **Bayard H. Roberts,** corporate secretary.

Eight assistant vice presidents will report to Mr. Flannery: **E. L. Claypole,** assistant vice president-operation-East; **E. P. Frasher,** assistant vice president-operation-West; **R. B. Hasselman,** assistant vice president-operation-staff; **J. H. Sharp,** assistant vice president-yards and terminals (effective Oct. 15); **H. C. Kohout,** assistant vice president-operating administration; **R. D. Timpany,** assistant vice president-passenger operation; **W. F. Kirk,** assistant vice president-mail and TrailVan services, and **J. J. Wright,** assistant vice president-research. Others reporting to Mr. Flannery: **E. R. Adams,** general manager, Metropolitan Region, New York; **L. F. Battaglia,** director-freight claims and prevention, and **D. L. Nelson,** director-security.

Reporting to Mr. Timpany: **F. S. King,** general manager, Philadelphia Commuter Area.

Titles of the six vice presidents and general managers of operating regions changed to general managers.

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Reporting to Mr. Kreyling: **J. G. Patten,** assistant vice president-freight sales; **J. R. Sullivan,** assistant vice president-marketing; **G. R. Wallace,** assistant vice president-coal and ore; **V. J. Floyd** and **O. W. Pongrace,** directors of industrial development. The titles of assistant vice presidents-freight sales changed to regional sales managers.

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Reporting to Mr. O'Herron: **R. W. Loder, A. W. Martinelli** and **Robert Haslett,** assistant vice presidents, finance department; **J. H. Shaffer,** treasurer; **C. S. Hill,** controller, and **G. A. Royce,** director-insurance. Reporting to Mr. Hill: **T. F. Meehan,** director-auditing.

Reporting to Mr. Funkhouser: **W. H. Tucker,** senior executive representative, Boston, and five executive representatives—**F. G. Darrison** and **W. H. Tinney,** Washington; **J. E. Chubb,** Baltimore; and **C. E. Ingersooll** and **J. W. Diffenderfer,** Philadelphia.

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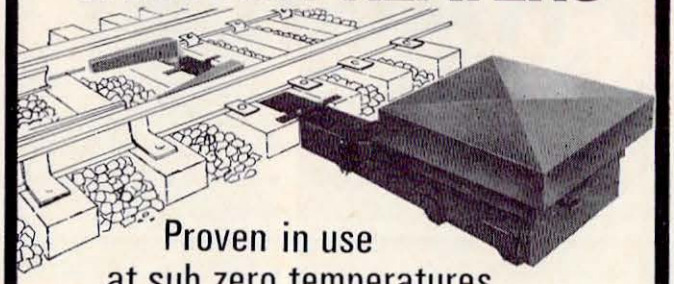
Charles N. Olsen, assistant secretary, elected corporate secretary, New York, succeeding **C. W. Rossworn,** retired after 49 years of service.

NEW!

RAILS COMPANY

HAB-HP

SWITCH HEATERS



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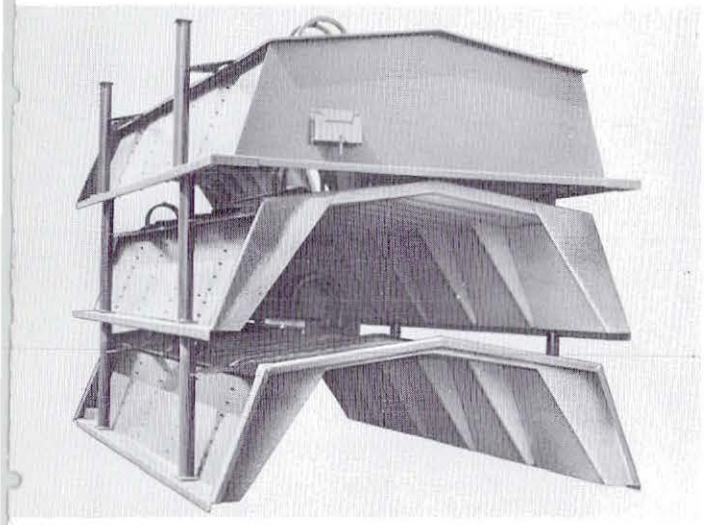
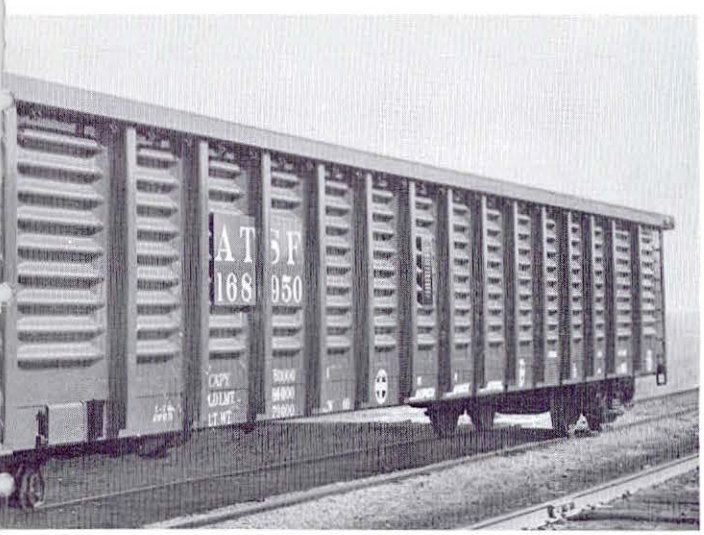


This 3-section removable roof provides a gondola with 75 percent of the capacity of a boxcar. Is specially reinforced, stacks easily, and comes with top or end-mounted inspection hatches.

Twin-section coil cover can be easily stacked for loading or unloading. Has end-mounted inspection hatch.



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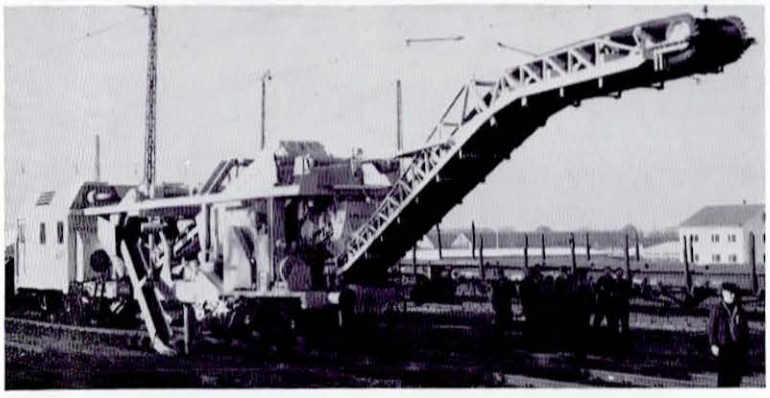

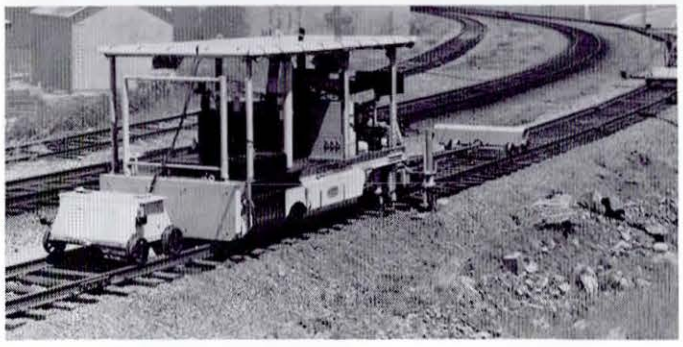

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This successful combination can save investment capital, reduce maintenance costs, eliminate operational headaches, while providing the finest quality work.

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People in the News

Alan G. Dustin
BAR

Fred E. Deines
BN

Richard A. Beulke
BN

Harold H. Holmquist
BN

Karl A. Stoecker
Southern

William J. Fox
UP

ASSOCIATION OF AMERICAN RAILROADS.—G. Merrill Moody, manager of personnel, promoted to assistant to vice president for legislation.

BANGOR & AROOSTOOK.—Alan G. Dustin, assistant to the president—railroads, **Amoskeag Co.,** in addition, elected vice president, Bangor & Aroostook.

Linwood W. Littlefield, manager of car service, Bangor, Me., appointed manager of operations and maintenance, succeeding **Palmer H. Swales,** resigned to join a Lexington, Mass., consulting firm.

BESSEMER & LAKE ERIE.—Grey E. Pratt appointed director—production control, Conneaut, Ohio. He will coordinate dock and railroad activities.

BURLINGTON NORTHERN.—Fred E. Deines, vice president, Omaha region, Omaha, named vice president, sales and services, St. Paul, succeeding **Edwin M. Stevenson,** retired. Mr. Deines' successor is **Richard A. Beulke,** vice president, personnel, who in turn is succeeded by **Harold H. Holmquist,** assistant vice president, personnel.

P. A. Nemcek appointed director of labor relations; **L. K. Hall,** assistant director of labor relations; **S. W. Holliday** and **D. S. Smith,** managers, labor relations, all with headquarters in St. Paul.

Leonard L. Van Zinderen appointed assistant vice president, costs and statistics, St. Paul, to succeed **Gordon A. Richardson,** who retired Sept. 1 after 43 years' service.

John T. Pearson III named financial analyst, financial planning department, St. Paul.

Charles W. Fish named trainmaster, St. Paul.

G. E. Trenary appointed regional labor relations manager, Minneapolis, replacing **C. L. Melberg,** transferred to Portland, Ore. *(continued on page 56)*

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Furniture? Fruit? Electronic Equipment? Delicate products that require delicate handling. We're building a whole new breed of specialty cars to handle special freight. Cars with extra wide doors to make loading and unloading faster, easier. Air bags and moveable dollies to minimize damage to your product. New ideas in rail cars for today's special freight. We can build you a car for whatever you ship that's fragile.

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Circle 23 on coupon page 63

G. B. Mott, industrial engineer, Fort Worth, Tex., becomes senior industrial engineer, Minneapolis.

David F. Ylkanen named director, organization and manpower planning; **M. M. Smiland,** director, employee services; **James B. Dagnon,** manager, personnel research and statistics, all with headquarters in St. Paul.

R. W. Masden appointed material manager, West Burlington, Iowa; **S. Tropino,** Lincoln, Neb.; **W. H. Schlieper,** Laurel, Mont.; **R. G. Schultz,** King Street material store, Seattle. Mr. Masden replaces **A. M. Fitch,** retired, and Mr. Schultz succeeds **G. A. Wobser,** also retired.

PENN CENTRAL.—Has reduced the number of vice presidents from 35 to 11. The eleven, who will report directly to the president, are: **Robert G. Flannery,** vice president-operation; **Edward G. Kreyling, Jr.,** vice president-sales and marketing; **Jonathan O'Herron,** vice president-finance; **James A. McDonald,** vice president-staff; **Samuel H. Hellenbrand,** vice president-real estate and taxes; **Basil Cole,** vice president-legal administration; **Paul Funkhouser,** vice president-public affairs; **Malcolm P. Richards,** vice president-purchases and materials; **J. J. Maher,** vice president-labor relations; **F. L. Kattau,** vice president-personnel, and **William A. Lashley,** vice president-public relations. Also reporting to the president will be **Bayard H. Roberts,** corporate secretary.

Eight assistant vice presidents will report to Mr. Flannery: **E. L. Claypole,** assistant vice president-operation-East; **E. P. Frasher,** assistant vice president-operation-West; **R. B. Hasselman,** assistant vice president-operation-staff; **J. H. Sharp,** assistant vice president-yards and terminals (effective Oct. 15); **H. C. Kohout,** assistant vice president-operating administration; **R. D. Timpany,** assistant vice president-passenger operation; **W. F. Kirk,** assistant vice president-mail and TrailVan services, and **J. J. Wright,** assistant vice president-research. Others reporting to Mr. Flannery: **E. R. Adams,** general manager, Metropolitan Region, New York; **L. F. Battaglia,** director-freight claims and prevention, and **D. L. Nelson,** director-security.

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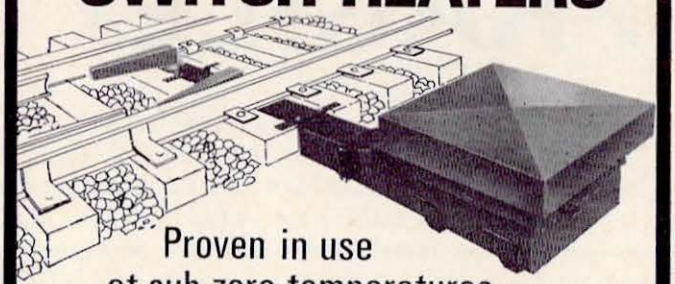

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High pressure blower distributes hot air steadily, evenly, through a duct and nozzles—keeps switch points operating in all weathers.

All components located for easy installation and servicing—separate remote control panel is free from trackside vibration. Hot air duct is electrically insulated against track circuit interference and designed to provide maximum air flow.

Manual or automatic operation. Oil fired, natural gas or propane models available.

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Circle 22 on coupon page 63

TRANSIT

ATA told: "No time to waste"

"Boston—Where It All Began!," proclaimed all the posters, and all the speakers too, at the 89th annual American Transit Association meeting Sept. 20-24 in—yes—Boston. For it was in Boston, in 1882, that ATA was founded. Then the organization was called the American Street Railway Association, the name being changed in 1932 to reflect new technology. The over 1,200 registrants who attended the 3-day event heard a lot about still newer technology, and they also heard what experienced convention-watchers rarely hear: hard-news speeches from the speaker's rostrum.

Massachusetts Gov. Francis W. Sargent, delivering his welcoming speech—a device which usually calls for perfunctory civilities—made a ringing appeal for a "battle plan" to gain "massive federal funds for public transit." He called for removal of limitations on the use of Highway Trust Fund monies for non-highway purposes and endorsed the creation of a single Transportation Trust Fund whose monies would be allocated by the states among different transportation modes "on a flexible basis in accord with the differing needs of each state and each metropolitan region."

Gov. Sargent said transit supporters, such as cities and urban and state groups, must "organize a strong, effective public lobby that will reflect the strong voice of mayors and governors.

"There is no time to waste," he declared.

Sen. Jennings Randolph (D-W. Va.), chairman of the Senate Public Works Committee, decried the fact that—save San Francisco's BART and projects in initial construction or planning phases—no new rail rapid transit system has been started in the U. S. for 60 years. He defended his proposal to divert some Highway Trust Fund monies for bus lanes, purchase of some transit equipment, and transit operating subsidies. The Senator also said opposition to his plan on the part of the Federal Highway Administration and the American Association of State Highway Officials was "narrow."

(A week after this, on Sept. 28, the Senate Public Works Committee killed its chairman's plan when it voted out a

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MEMBER RPI RAILWAY PROGRESS INSTITUTE

Circle 24 on coupon page 63

Federal Highway bill without mass transit assistance provisions. However, aid for busways is still alive in the House version of the bill, approved last month by the House Public Works Committee.)

DOT Secretary John A. Volpe in his address said more than half of the market in mass transit expenditures in the next decade will be devoted to rail rapid. He estimated this total market at from $20 to $34 billion. He made news at a press conference when he said he would intervene in the historic dispute between the House District of Columbia Appropriations Subcommittee and the D. C. Government over subway and freeway priorities. His intervention may resolve the dispute, which has tied up $34 million in funds for D. C.'s METRO rail rapid system.

The government official most convention-goers wanted to hear was Urban Mass Transportation Administrator Carlos C. Villarreal. He brought with him six top aides to explain UMTA programs and to celebrate the imminent passage of the Urban Mass Transportation Act of 1970 (*See page 25*), an event clearly on everyone's mind.

In praising the bill's passage, Administrator Villarreal said simply, "We in the transit industry need to realize that our place in the importance of things has changed. It's not problems without solution or business as usual anymore. Priorities have changed; needs have changed; our program has changed. We are now being heard."

UMTA's major thrust at the meeting was in the form of a briefing by Dr. Robert A. Hemmes, assistant administrator for Program Demonstrations, in which streamlining changes in UMTA's research, development, and demonstrations programs were outlined.

Pointing out that in January, 1970, UMTA had 120 R & D and demonstration projects monitored by a dozen people including secretaries, Dr. Hemmes said:

"As most UMTA watchers know, the consequence of this was such an administrative overload that little or no attention could be given to the evaluation of new, unsolicited proposals—or the creation of new directions, goals, and objectives . . . Changes were called for."

These changes, indicated Dr. Hemmes, could best be described briefly as adopting NASA systems procurement techniques to meet UMTA's R & D needs.

Dr. Hemmes explained the new procurement policy as follows:

Its essential elements are, he said, use of systems management engineers and integrating contractors, and more use of the procurement contract as opposed to the grant contract.

"In January we required that projects be submitted by public bodies who were willing to share one-third of the project cost. We now will consider unsolicited proposals from public or private source and will fund up to 100% of the cost if it is in the national interest.

"In January our emphasis was on demonstration projects to serve local needs. We now are recognizing and using the research and development categories as well as demonstration. Now we are not responding primarily to local needs, for that is the purpose and function of the capital grants program. Now we are taking the initiative and undertaking projects that have primarily national relevance instead of parochial application.

"In January our projects were managed on an individual basis. Now we are aggregating them under broad headings and we will manage them through a systems manager and integrating contractor who acts as our agent," he explained, adding that UMTA on Sept. 11 began soliciting bids from systems managers.

"In January there was a strong emphasis on the New Systems program," he continued. "We now realize that we must improve existing bus and rail systems during the development of new systems." ■

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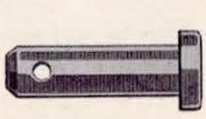

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Circle 25 on coupon page 63

SUPPLY TRADE

James W. Pilz, director sales, **Timken Co.,** Canton, Ohio, has been elected vice president—marketing. This is a new title for the position formerly held by **Paul J. Reeves,** vice president—sales, who retired Sept. 1, after more than 41 years of service.

Alton L. Pollard, assistant service manager, **Jackson Vibrators, Inc.,** Ludington, Mich., has been promoted to national service manager, Chicago. **James J. Delaney,** service manager, Ludington, has been named regional sales manager for the western half of the U.S., with headquarters in the San Francisco area.

Singer-Vapor Corp. has named **J. Samuel Keller** and **R. H. Townsend** to the newly created positions of product manager for relays and electronic systems and product manager, door and temperature control systems, respectively.

Howard G. Menzel, district manager, **Ohio Brass Co.,** Philadelphia, Pa., has been appointed marketing manager, Transmission Materials, Mansfield, Ohio. **Daniel E. Harrison,** manager of program requirements. Re-entry Systems Department, **General Electric Co.,** succeeds Mr. Menzel.

Albert R. Morelli has been appointed manager for a new Ohio Brass district office to be established in the Miami, Fla. area. He was formerly marketing manager, transmission and distribution materials.

Walter A. Dahl has been named district sales manager, **Keystone Railway Equipment Co.,** Chicago.

Frank Malone, traffic editor, **Railway Age,** has been named account executive, **Burson-Marsteller,** Chicago.

Denis G. Dominy has been appointed manager, prime mover design, transportation research and development, **MLW Industries.** He was formerly with **Alco.**

Miner Enterprises has moved its International Division from Washington, D.C., to Chicago.

Elwyn H. Pfaender, product manager, **Barco Division, Aeroquip Corp.,** has been promoted to industrial products manager. **Jeffrey E. Lortz,** product specialist, has been advanced to sales engineer for the New York City area and northern New Jersey. **Elmer Stringham,** manager of railroad marketing services, has been named a railroad district manager for the southeastern states.

C. Bruce Kennedy has been appointed to the newly created position of manager of production engineering and field services, **Youngstown Steel Door Co. Ernest E. Bradley,** mechanical engineer, appointed mechanical and sales engineer, a new post.

Benjamin Margules has been appointed national sales manager, **Mitsubishi International Corp.,** Chicago, for its line of pile drivers, construction equipment, railroad equipment and rolling stock.

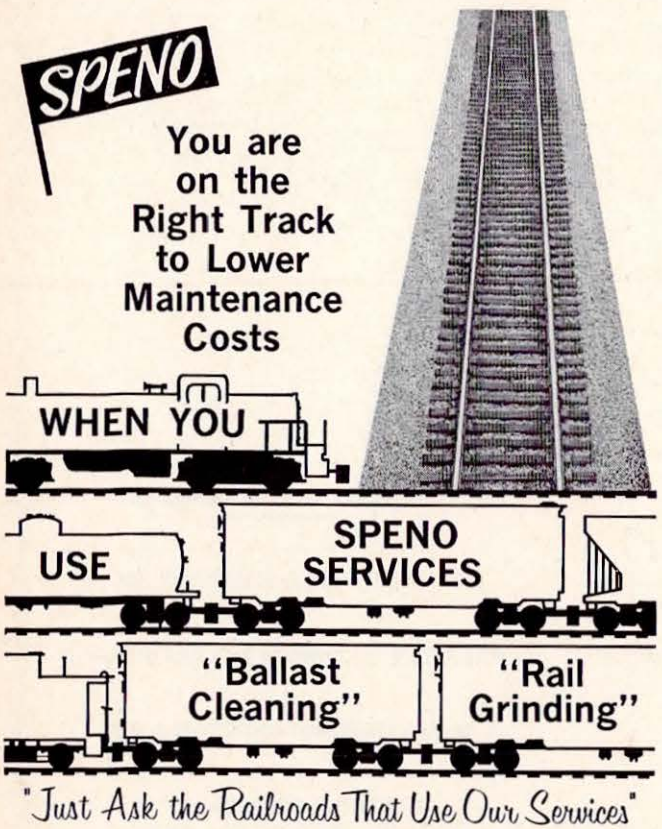
Midland-Ross Corp. has acquired **Tami Systems Corp.** of Miami, Fla., manufacturer of mobile straddle cranes for transportation, aerospace, marine and industrial firms.

TRANSIT

Joseph C. Kelly, acting general manager, **Massachusetts Bay Transportation Authority,** Boston, named general manager. **Joseph H. Elcock, Jr.,** appointed general counsel. Mr. Elcock was formerly Assistant Attorney General for Massachusetts; vice chairman, Massachusetts Turnpike Authority, and more recently in private practice.

Ralph E. Jackson, senior associate with **Barton-Aschman Associates, Inc.,** Chicago, joined the staff of the **Regional Transportation District,** Denver, Colo., on Sept. 21 as senior transportation planner.

Leslie A. Irvin has been named manager, transportation engineering, Hydro & Community Facilities Division of **Bechtel Incorporated,** San Francisco, Calif. For the past seven years, Mr. Irvin has been manager of engineering, **Parsons Brinckerhoff-Tudor-Bechtel,** the joint venture in charge of engineering and construction management for the San Francisco Bay Area Rapid Transit District.



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Circle 26 on coupon page 63

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Circle 27 on coupon page 63

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1973	7.80	1977	8.15	1981	8.50
1974	7.95	1978	8.25	1982-85	8.55

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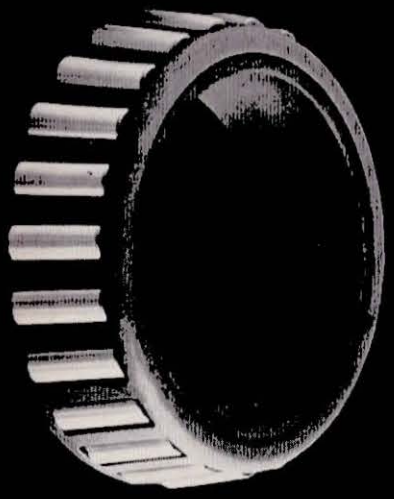

Brenco Incorporated, Petersburg, Virginia.

BRENCO Tapered Roller Bearings

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New Products Report

Mini computer (RA-1)

A new minicomputer, model 2114B, priced at $8,500, features a direct memory access option which costs $1,500 and provides a high-speed data channel assignable under program control to any of the computer's seven input/output channels. Multilevel priority interrupt is standard. An optional 56-channel multiplexed I/O system is available. The high-speed data channel can also be had with the multiplexed I/O. According to HP, the new computer is designed for data-communication, instrumentation, and educational systems. Model 2114B had a memory capacity of 4096 16-bit words, expandable to 8192, and a memory cycle time of 2.0 microseconds. *Hewlett-Packard Co.*

Intercom systems (RA-2)

"Touch 'n Talk" intercom systems feature touch button for station selection and talking; hands-free remote answering or complete privacy; automatic or manual call cancellation; lamp and tone indicators; system volume control; and options to add ten additional stations; voice paging (one-way or page with reply) and executive priority. Telephone handsets can be provided for private conversations. *DuKane Corp.*

Crossing gate (RA-3)

A lightweight, aluminum highway crossing gate mechanism and signal assembly had signs and crossarms fastened to the mast with stainless steel bands. The gate mechanism is over 240 lb lighter than previous models. The gate arm is of sectional, pre-fabricated wood construction for speedy installation or replacement.

Type F gate is provided as a complete signal assembly, with aluminum mast and flashing lights, or as a mechanism and gate arm only, with an adaptor for mounting on any existing 4 in. or 5 in. mast. The aluminum signal assembly is also available as a flashing light signal, without the mechanism and gate arm. *General Railway Signal Co.*

Microfilm system (RA-4)

The 335 Transflo microfilm processor can process and reproduce computer originated microfilm. A view mounter (model 35VM), RS and SS 18.24 reader-printers, OP-60 card duplicator and OP-61 add-on module, and automatic platemaking machines are compatible with other microfilm systems.

Primary use of the Itek 3536 microfilm camera is to simplify microfilming large and small engineering documents. The detachable take-up magazine, containing exposed film up to 100 ft, can be removed from the camera and placed directly on the 335 Transflo processor for daylight loading. Maximum size of originals is 45 in. x 63 in. Four rolls of 16mm or three of 35mm may be processed simultaneously.

The RS 18.24 reader-printer accepts 16mm and 35mm film. Images are magnified 14.5x and displayed on the 18 x 24 inch screen. This unit provides prints in less than 30 seconds. As many as 21 copies can be operator-selected and printed automatically at the rate of four prints per minute for handling. *Itek Business Products.*

TV camera (RA-5)

Two new SEC (Secondary Electron Conduction) television camera models, STV-706 and STV-713, are highly sensitive for viewing in low-light-level conditions. The STV-706 camera is the standard model for general-purpose low-light-level use; the STV-713 camera is equipped with an image intensifier for viewing in darker areas with extremely low light level.

These SEC cameras "see in the dark" because the STV-706 is about 100 times more sensitive, and the STV-713 about 5,000 times more sensitive than a standard vidicon camera. These cameras also feature automatic gain control, broad spectral sensitivity, low power consumption, and basically a "hands-off" operation once the camera is set up properly. *Westinghouse Electric Corp.*

Data input system (RA-6)

A data-input system capable of feeding information simultaneously from up to 64 keystations is the Keyplex system. Operators can encode data onto computer-compatible magnetic tape. The Keyplex system makes available record sizes variable to 400 characters. Data may be verified immediately after being entered and may be transferred from storage to output without interrupting keystation operators.

Data entered at a keystation travel

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through a keystation multiplexer to the processor. The processor identifies the data with its point of origin and compares it in memory to determine whether the data is valid and proper. When the buffer of
it is recorded on magnetic disk. Data retrieved from the disk is transferred to magnetic tape for processing by an on-site computer, or for communications to a remote location, or for print-out on a line or serial printer. *Honeywell Data Products Division.*

Engineering computer (RA-7)

The advance 6000 series computers have a word length of 24 bits plus a parity bit. Automatic parity checking is performed on all memory references between memory and central processor and/or imput/output channel. Memory size is 8,192 words expandable to 32,768 words—all directly addressable. Cycle time is 1.9 microseconds. There are available 35 recognition levels of priority interrupts and 32 priority external device levels. Highspeed input/output is 525,000 words a second (direct access or high speed channels), 230,000 characters a second (buffered character channel) or 175,000 words a second (buffered word channel).

Memory expansion is up to a directly addressable 32,768 24-bit words. Up to 8 fully buffered input/output channels, most having the capability of serving 16 external devices, are available. Up to 4,096 external sense and control lines are available. Special options include analog-to-digital and digital-to-analog units. *EMR div. Weston Instruments Inc.*

Environment monitor (RA-8)

Dependable operations of computers and associated EDP peripheral devices rely on a closely maintained temperature and humidity environment. The user can set the desired environmental limits into EnviroGuard. The device continuously monitors the temperature and humidity for fluctuations violating these "set point" values. It sounds a warning when one occurs and permanently records the temperature and humidity.

The unique automatic trigger design of EnviroGuard allows months of information to be recorded on a single strip chart. Any violation of the set point starts the recorder, permanently recording and displaying the temperature and humidity of the EDP installation's environment. When these parameters return to in range values, recording stops and EnviroGuard returns to its monitoring only mode. *Western Union Computer Utilities, Inc.*

Video terminal (RA-9)

A new video data terminal called the TST
character capacity. It gives data transmission rates as high as 1200 baud (2400 baud optional) for computer communications. The terminal is interchangeable with any teletypewriter and requires no software or hardware modifications. The system's two-page capacity (including one on the CRT and one in storage) allows the user to switch back and forth for edit in both entry and retrieval operations.

It utilizes a standard typewriter keyboard plus a ten key adding machine keyboard for numerical entry. The terminal is self-contained, with keyboard, CRT, electronics, power supply and optional built-in hard wired coupler. When hard copy is desired, virtually any standard printer can be simply attached. *Video Systems Corp.*

I/O terminal (RA-10)

The Navar 5-50 is designed expressly for modern computer teleprocessing systems. It looks like a standard IBM 2740 or 2741 terminal when used in the basic IBM QTAM or BTAM packages. Transmission speeds over standard dial-up telephone lines for sending and receiving data from a computer range of 300 to 2400 baud.

The Navar 5-50 system can be used: (1) with any computer with telecommunications that can support IBM Selectric terminals; (2) with standard Data-phones, acoustic couplers—Or, it can have a built-in modem; (3) as a batch terminal for remote job entry; (4) as a conversational on-line terminal; (5) as a high speed Teletype system, when transmitting from terminal to terminal without computer intervention; (6) as a power typewriter when printing off-line from the cartridges, and (7) as an ordinary office typewriter. *Novar Corp.*

Systems development (RA-11)

A system of computerized car tracing has been developed to aid car utilization and distribution. The system would automatically notify appropriate operating personnel if and when cars miss connections, or when cars are off schedule. Periodic reports on yard performance would be generated.

Commodity flows for several railroads have been developed by Xenex, specialists in computer usage. The computerized car tracing system was developed in cooperation with Systems Analysis & Research. Xenex also performs airline origination-destination studies. *Xenex Corp.*

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Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Sept. 26 totaled 552,049 cars, according to the Association of American Railroads. This was an increase of 2,503 cars, or 0.5%, above the preceding week and a decrease of 41,445 cars, or 7.0%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Sept. 26 are estimated at 15 billion, 5.2% below the corresponding 1969 week.

REVENUE FREIGHT CARLOADINGS

Commodity	Sept. 26 week	Sept. 19 week
Grain	29,957	29,640
Farm products	12,351	11,001
Metallic ores	45,861	49,857
Coal	110,324	109,141
Crushed stone, gravel & sand	34,453	33,207
Nonmetalic minerals	11,603	11,332
Grain mill products	19,762	20,050
Food & kindred products	26,045	25,435
Primary forest products	26,359	25,701
Lumber & wood products (except furniture)	15,866	15,227
Pulp, paper & allied products	23,991	22,895
Chemicals & allied products	26,479	26,301
Petroleum products	10,120	10,211
Stone, clay & glass products	20,713	20,449
Coke	8,368	7,612
Metals & Products	24,130	24,541
Motor vehicles & equipment	13,566	16,894
Waste & scrap materials	14,991	14,983
Forwarder & shipper assn. traffic	7,198	7,108
All other carloads	69,190	67,270
LCL traffic	722	691
Total cars loaded	552,049	549,546

CUMULATIVE TOTAL, 39 weeks	1970	1969	1968
	20,447,094	20,986,696	21,176,891
Estimated revenue ton-miles (billions) 39 weeks	568.9	569.9	556.9

PIGGYBACK CARLOADINGS

U.S. piggyback loadings in the week ended Sept. 19 totaled 25,381 cars, 6.5% below the comparable week last year, and 39,995 trailers or containers, 13.1% below the corresponding week last year. Cumulative volume for the first 38 weeks of 1970 is 928,506 cars, 4.8% below the 1969 total, and 1,534,518 trailers or containers, down 4.1% from last year.

IN CANADA

7 days ending	Revenue Cars Loaded	Cumulative Totals
Sept. 14, 1970	76,489	2,678,835
Sept. 14, 1969	73,309	2,526,131

FREIGHT-TRAIN CARS

● *Canadian National.*—Ordered 235 70-ton flat cars from Hawker Siddeley of Canada at an approximate cost of $4 million. Each of the 85-ft-long cars will be able to carry four 20-ft or two 40-ft containers, or a combination of both. They will be equipped to handle either top-lift or side transfer of the containers. Deliveries are scheduled to begin in late November and be completed by Jan. 15, 1971.

Also, National Steel Car Co. has ordered 1,500 sets of automatic empty and load brake equipment, costing about $2.5 million, from WABCO, Ltd. The equipment will be installed on covered hopper cars being built for CN (RA, Aug. 10, p.57). Delivery of a major portion of the braking equipment is expected before next December.

● *Orders and deliveries.*—Orders were placed for 2,148 new freight cars in August, compared with 4,340 in the preceding month and 2,679 in August 1969. New cars on order and undelivered on Sept. 1 totaled 25,782, compared with 29,040 on Aug. 1 and 47,915 on Sept. 1, 1969.

FREIGHT TRAIN CARS DELIVERED AND ORDERED IN AUGUST AND BACKLOG OF ORDERS

DELIVERED

	Aug. 1970	July, 1970	Aug. 1969
Built new by carbuilders	4,127	4,457	4,032
Built new in R.R. shops	1,037	989	1,450
Built new—total	5,164	5,446	5,482
Rebuilt	681	844	198
TOTAL DELIVERED	**5,845**	**6,290**	**5,680**

ORDERED

To be built new by carbuilders	2,148	4,226	2,284
To be built new in R.R. shops	0	114	395
To be built new—total	2,148	4,340	2,679
To be rebuilt	0	295	0
TOTAL ORDERED	**2,148**	**4,635**	**2,679**

ON ORDER AND UNDELIVERED

	Sept. 1, 1970	Aug. 1, 1970	Sept. 1, 1969
To be built new by carbuilders	20,853	23,074	39,816
To be built new in R.R. shops	4,929	5,966	8,099
To be built new—total	25,782	29,040	47,915
To be rebuilt	5,123	5,804	4,391
TOTAL ON ORDER	**30,905**	**34,844**	**52,306**

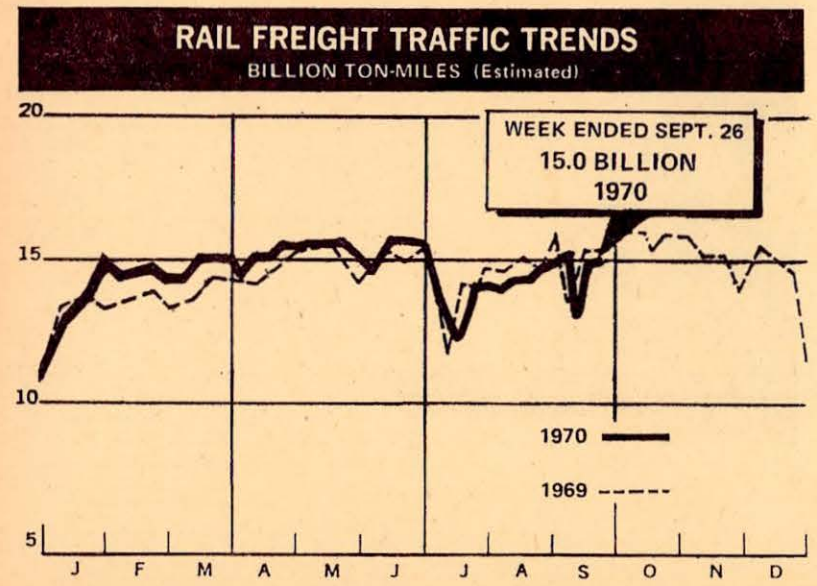
TRANSIT

● *Bay Area Rapid Transit.*—Nickel-cadmium storage batteries have been selected and qualified for the 250 BART transit cars. The batteries will be furnished by Thomas A. Edison Industries, a division of McGraw-Edison Co., under a sub-contract award made by the Rohr Corp., prime contractor for the cars. The contract also includes the option of furnishing 100 additional sets of battery cells for 100 additional cars.

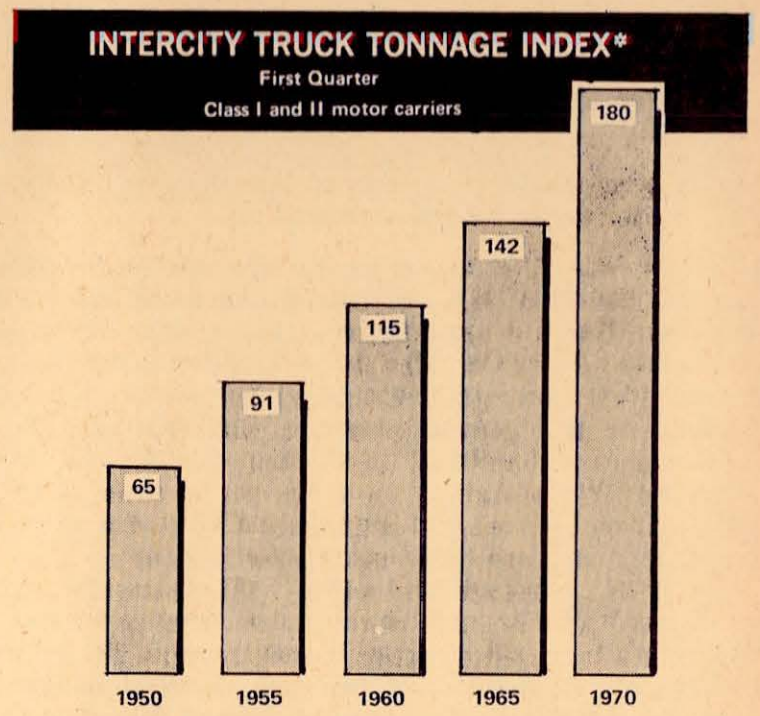
● *Port of New York Authority.*—Retained the Wigton-Abbott Corp. of Plainfield, N.J., as construction consultant on the $45-million PATH Journal Square Transportation Center now being built in Jersey City. The staff of PATH (the Port Authority's rail transit operating subsidiary) will perform the duties usually borne by a general contractor, administering contracts to assure the coordination of construction activities with PATH operations. Wigton-Abbott, for a fee not to exceed $750,000 over a 30-month period, will assist the PATH staff in reviewing project staging, plans and contract specifications.

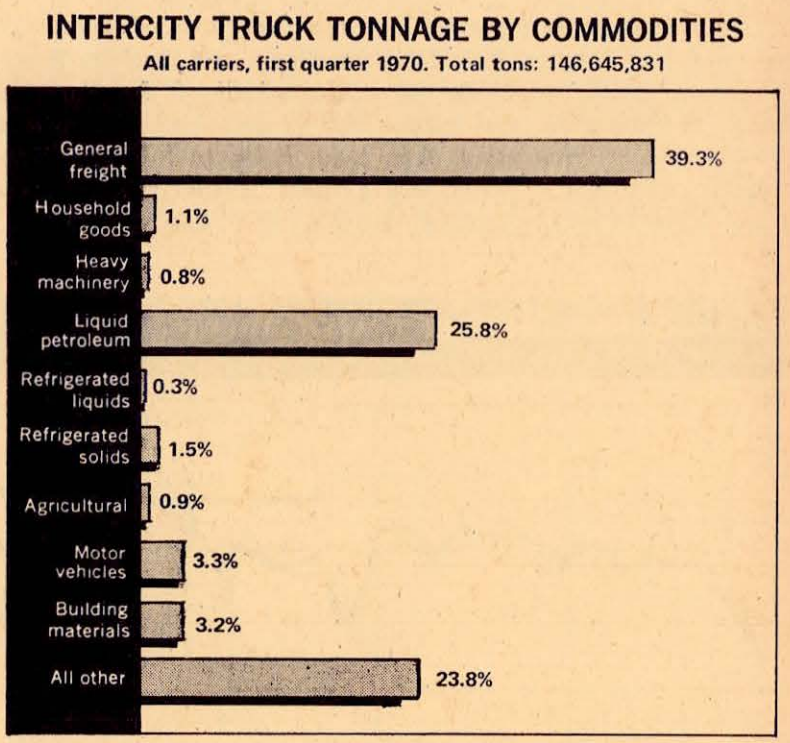
Also, PONYA has awarded a $1,970,257 contract for expansion of the PATH traction power system between Jersey City and Newark to permit operation of longer trains. The contract, providing for construction of two new electrical substations and a new switching system west of Journal Square, went to the Lighting Electric Co., Millburn, N.J. In addition, PATH has awarded a $332,900 contract to the Wrecking Corp. of America (Long Island City, N.Y.), for removal of buildings at the site of the Journal Square Transportation Center.

● *Washington Metro.*—Received an apparent low bid of $23,042,898 from Intercounty Construction Corp. of Hyattsville Md., and the Conduit & Foundation Corp. and Buckley & Co., Inc., both of Philadelphia, for construction of the Farragut North Metro station and approximately one-third of a mile of subway under Connecticut Ave. from K St. to Jefferson Place. The bid was 10.7% above the Transit Authority's estimate. It has already let contracts totaling $108-million.



Source: Association of American Railroads





Viewpoint

From Mr. Claytor, a chilling comparison

The notion persists in some quarters that nationalization will prove to be the cheapest way out of the present railroad crisis. Millions of words have been declaimed on the pitfalls of this course—but a few hundred words uttered by Southern President W. Graham Claytor, Jr., during a recent address before the AAR's Treasury Division, stated the case with chilling precision and clarity. This is what Mr. Claytor said:

"British Railways and Southern Railway are roughly comparable in route mileage—12,447 miles for the British and 10,165 for Southern. But there the resemblance ends. One of the more striking differences is in pay scales. The salary for full-time clerical employees on British Railways in 1968, for example, was $2,745 a year on the average. On Southern Railway the pay averaged nearly $7,900 a year for comparable jobs—almost three times as much. Another startling contrast is in the number of people needed to operate the railway. Southern in 1968 had just under 20,000 employees while British Railways had over 296,000 people, or *nearly 15 times as many*. Incidentally, Penn Central with twice our route miles has nearly five times as many employees—but still only one-third as many as the much smaller British Railways.

"Equally striking comparisons can be found in freight statistics. Southern Railway System produced more than 37.3 billion ton-miles of freight service in 1968 and the British Railways approximately 14.6 billion, less than 40% as much. On the other hand, looking at revenues, Southern took in less than $488 million in freight revenues in that year, while the nationalized British Railways received more than $490 million. To put it another way, the average charge for hauling a ton of freight one mile on British Railways was nearly three times as much as the average charge by Southern.

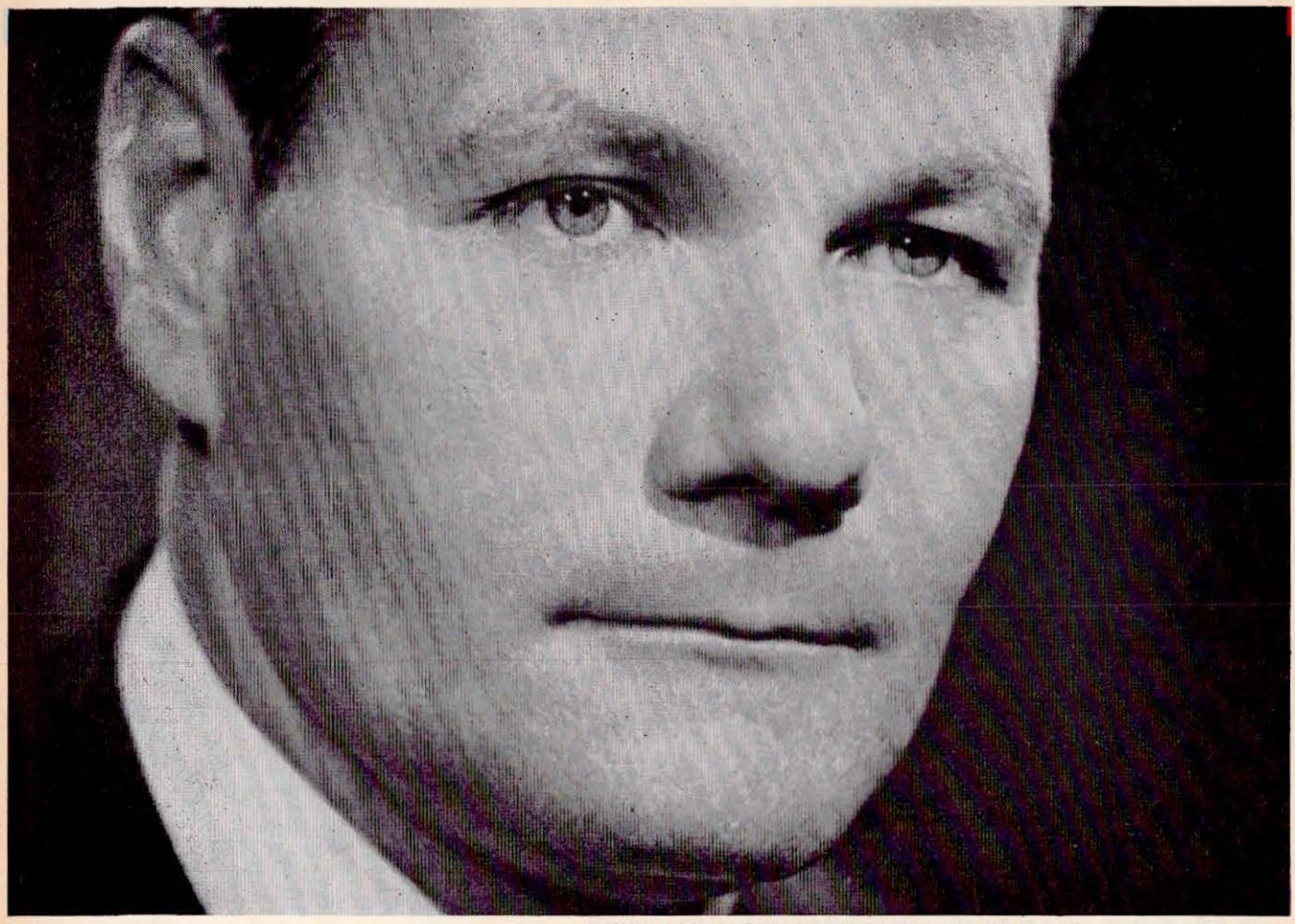
"Now, what kind of financial results did the total operations of each system produce? Despite higher average and gross freight revenue, British Railways ended 1968 with a *deficit* of more than $217 million, not including, of course, any taxes. Southern, on the other hand, earned a net income in 1968 of nearly $43 million and in addition paid more than this—some $50 million—in Federal, state and local taxes. Enormous British passenger losses were partly responsible, but even without these the comparison is startling.

"If I were simply a taxpayer and had no connection with railroads at all, such results would make me glad that America's railroads are in private hands and inspire me to do all I could to keep them there."

OTHER RAILROADS, PLEASE COPY

Thus did Mr. Claytor state the case against nationalization, in terms that his on-line customers and Congressmen were likely to understand.

Perhaps it would be a good idea if all railroads made such a localized comparison—and sent a copy to every opinion leader along the line. Accompanied of course, by a copy of the ASTRO report, which proposes the kind of private enterprise/government partnership that can revitalize the railroads short of Federal takeover.



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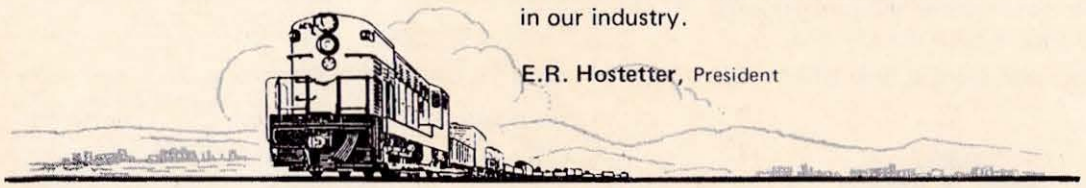

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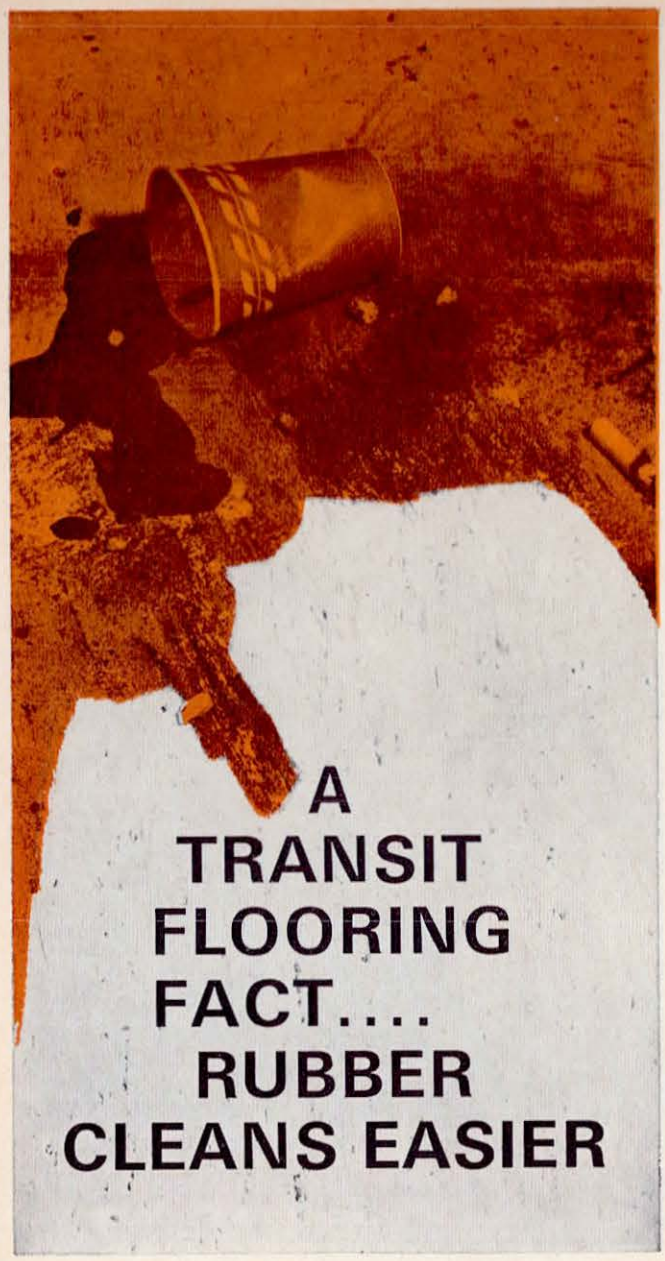

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VIEW FROM THE STREET

A crisis of confidence

When the Penn Central fiasco occurred in late June, the already shaky financial markets reacted violently. In general, the transportation sector suffered the most severely because of alarmist statements made by Administration spokesmen in a futile attempt to obtain Federal loan guarantees for carriers. However, the equities of other highly leveraged industries—notably aerospace, franchising, and leasing companies—also registered huge percentage declines. The reaction was natural enough under the circumstances; even if the credit of a company was sound, most buyers simply cancelled existing bids and waited to see how much lower prices would go. In terms of volume, very little selling did materialize, aside from shares of the Penn Central itself. However, the continuing problems afflicting the railroad industry's short-term outlook—strike threats, denial of requested rate relief, the auto strike—kept most investors on the sidelines until recently. As measured by Standard & Poor's Rail Index, the rail market fell from 31.67 in early June to a low of 24.35 in early July, or about 23%. During the last two months the market has slowly regained the lost ground, closing on Oct. 2 at 32.52.

In the bond markets, the impact was even more dramatic. All issues, including those of the highest quality, were under selling pressure, and fell to nominal prices due to lack of bids. Furthermore, the crisis in the rail sector gave many normal buyers of rail issues who were short of cash an excuse to back out of prior commitments. The effect was all the more severe because of the demoralized conditions which prevailed in the bond markets as a whole. When one of the strongest systems was finally able to sell a major debt issue in late July, it was forced to offer a collateral trust bond with an 11% coupon on a 7-year, A-rated issue. Such a rate is unprecedented in the entire history of rail finance.

This background does not bode well for an orderly refinancing of the $190,000,000 in rail mortgage debt which comes due during the next fifteen months. Bank credit can temporarily tide over a company when money-market conditions are unfavorable, but it can not refinance on a permanent basis the obligations of a whole industry. Accordingly, railroads must regain their credit standing within a matter of months. The best and most time-tested way to restore confidence is to put together two or three quarters of rising earnings, back-to-back.

Can the job be done? Just now, it's touch and go. A number of roads posted encouraging results for the first six months of 1970, equal to or better than their 1969 performance. With a little belt-tightening and a will to win, it is not unlikely that most roads can report a better 1970 year than they did in 1969—with obvious exceptions. Given the still-shaky state of the security markets, it is pretty clear that a failure to make the maximum effort to exceed 1969 results may well have far wider implications for rail credit than did the collapse of the Penn Central Transportation Co. In that context, crying about the squeeze on profits caused by wage increases, or emphasizing the other problems which face the industry is distinctly unproductive.

Bad communication . . .

The foregoing brings to mind a couple of more general problems in financial communications not directly related to the current money squeeze. One is the difficulty most investors have in obtaining a reliable estimate of the financial impact of a major news item, good or bad. The other is the fact that many statements made by industry representatives in a specific regulatory or bargaining situation, relating solely to the matter at hand, have seemingly disastrous implications for the financial health of the railroads as a whole.

A recent example of the first problem occurred when the Penn Central sought the refuge of the courts. Wild rumors circulated that "most roads are going to go under because the Pennsy owes them so much." Regrettably, only a few roads took immediate steps to publicize the actual amount of such unpaid claims, and to relate them to their over-all financial strength. The fact that a large majority of the nations' railroads did not wish to discuss, or were unable to discuss, the matter gave the false impression that a really serious problem was being concealed. This prolonged adverse speculation, and no doubt increased the severity of the price declines which occurred. When better information finally became available a week or two later, the panicky decline was halted, but the damage had been done.

The lesson, then, is a simple one: Whenever a problem occurs, provide all the factual details as rapidly as possible, and publicize it well. If the news is good, prompt discussion will keep the market from building inflated hopes, which inevitably lead to a severe correction—the 1965-68 merger market is a well-known example.

All companies, including railroads, are obliged to take specific bargaining positions which have a narrow context in the normal course of regulatory, public service, and labor matters, as do the other parties. If these statements are taken out of the context in which they are meant, they can put the industry in a rather unfavorable light. Precisely because they are specific statements about specific issues, they tend to receive undue publicity. If—as is usual in a bargaining situation—railroads are obliged to take a rather negative position, it can have upsetting side effects in a time of weak public confidence, and can adversely affect the industry's investment image even in a good market. Now, there is no question but that railroads have real problems; no need to recite the sad litany. But consider this: Other industries, and other segments of the transportation industry, face exactly the same kind of bargaining situations, and are, objectively speaking, in much worse shape. Do they choose language which emphasizes their problems? Of course not! They work very hard to develop a "house line" which can be quoted out of context without damage.

. . . creates a credibility gap

By way of contrast, the "house line" adopted by many roads, and sometimes by industry spokesmen, tends to overdramatize problems which are serious enough as they stand. Far too much use is made of catchwords like bankruptcy, service curtailments, insurmountable problems, abandonment, and so forth. Such words seem unlikely to impress the other parties in a matter, but they terrify quasi-sophisticated investors. Misuse of rhetoric and negative phrasing carries its own penalty: it renders suspect the credibility of industry and company spokesmen—not to mention security analysts and salesmen—who are responsible for marketing rail securities to institutions and the public. Surely it is possible to present a more balanced and consistent view in specialized matters which project effectively the triumphs, the potential, and the service which railroads render.

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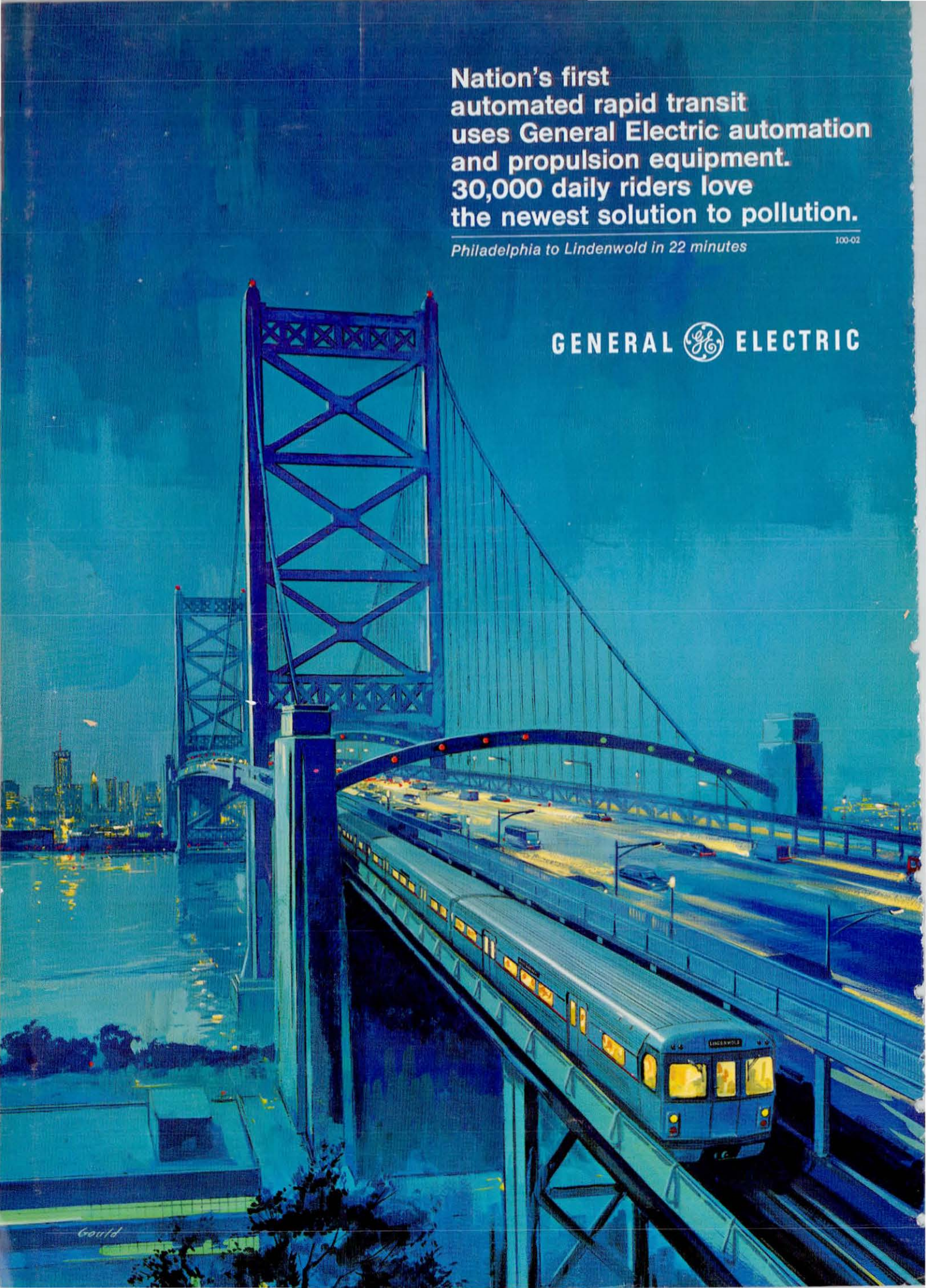
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